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UNRESTRICTED RUBBER.

THE scarcity in cargo ships, handicapping exports and imports, at last extends itself to crude rubber. The result is, that instead of 157,000 long tons or more for the year 1918, we are to get 100,000 tons. The vital question is: where are American manufacturers to get the 57,000 extra tons?—for the rubber business is not going to shrink. Indeed, in spite of the war and its influence on certain non-essential rubber goods, the trade, to do itself justice, should grow and consume say 200,000 tons. Bicycles and motorcycles will call for more tires than they did last year. The curtailment in the production of pleasure cars will be largely offset by the use of extra or spare cars and old cars remade, of which there are thousands. The call for pneumatic tires for new equipment, for replacement and for remades therefore is bound to be big.

The only rubber not "overseas" is the "railroad rubber," guayule from Mexico. That this may arrive in greater volume is indicated by a new activity on the part of the extraction plants in Torreon and in the action of the Mexican Government in reducing the rates on green guayule from six per cent to three per cent ad valorem and from four per cent to two per cent on guayule rubber. If, in addition, the Mexicans refrain from collecting too much "at the source," a great deal of rubber will be available.

There is also the possible utilization of hitherto unknown rubber shrubs within our own borders. There is, for example, the *Chrysothamnus,* described elsewhere in this issue, now being investigated by California botanists. Their work is in part an inventory of that state's natural rubber resources, and so important does it seem that its scope has grown to cover the adjoining states of Nevada, Colorado, Utah and Arizona. The fact that there are millions of pounds of available rubber in the *Chrysothamnus* is good news. Whether it will pay commercially to extract it remains to be seen, but it may yet prove an anchor to windward if present supplies falter or fail.

THE TRIUMPH OF THE RUBBER QUESTIONNAIRE.

FOR the first time in the history of the rubber industry manufacturers have been induced to open their hearts—and record books, and tell just how much they consume, not only in the way of crude rubber but of reclaimed rubber as well. This was accomplished by the sending out of 503 questionnaires, of which 448 were returned with full replies. This was done by the War Trade Board at Washington through the War Service Committee, by W. H. Dickerson, the trade expert. That there should be no individual use of such figures, the manufacturers were known only by key letters and only totals were accessible to anyone other than the trade expert.

The most interesting table was that showing the proportions of crude and reclaimed rubber used in goods of American manufacture. As showing the excellence of the reclaimer's art it is to be noted that every general line of manufacture uses some of this product, even cement manufacturers. Where insulating or waterproof qualities are called for more reclaimed than crude is used, but where resilience is vital the reverse is true. In the summing up, the totals stand:

Crude rubber, 352,675,048 pounds.
Reclaimed rubber, 222,728,095 pounds.

This is an excellent beginning and it is to be hoped will lead to a comprehensive statistical record of what is done in American rubber manufacture. Such, available to manufacturers and supply men, will be of the greatest value. It would serve to steady markets, prevent errors in buying, and in no way handicap those who furnish or use any or all of the variety of ingredients that go into rubber manufacture.

A very interesting conclusion also is that covering the volume of the American rubber trade for 1918 in dollars. Heretofore, it has been placed at about $600,-

000,000. Taking into account the higher prices prevailing, the trade expert puts it at $800,000,000.

AUTOMOBILE CURTAILMENT AND TIRE PRODUCTION.

THE decision of the National Automobile Chamber of Commerce to cut the production of pleasure automobiles 30 per cent during the present fiscal year as a war measure will affect the tire industry relatively little. The increase in the number of automobile registrations for 1917 was 1,635,067. On this basis, including both commercial and pleasure cars, a reduction of 30 per cent would aggregate 500,000 cars with 2,000,000 tires for original equipment, or less than 10 per cent of the 1917 tire production. But what constitutes a pleasure car? Many roadsters, touring cars, coupés and even limousines are used chiefly for business purposes. If less than 10 per cent of the automobiles in the country are used for recreation then the reduction would be only some 660,000 tires, or about 3 per cent of the 1917 tire production. In any event, the increased demand for solid tires will more than offset the curtailment of that for pneumatics. Certain it is that the 5,148,063 cars registered in 1917 are now needed as never before, and will require some 25,000,000 tires for their maintenance during the present year.

PLANTATION RUBBER PROSPECTS.

THOSE pessimists whose constant fear is an overproduction of plantation rubber appear consistently to ignore the exhaustive work of the world's leading rubber statisticians. Moreover, they fail to appreciate to what extent such compilations of past and present figures forecast the future. Statistics disclose seven well authenticated facts which must be regarded as significant with regard to plantation rubber prospects.

Briefly, these are as follows: (1) Despite the disorganizing influences of the war, which deprived the market of Germany's annual purchases of crude rubber amounting to nearly 20,000 tons, as well as nearly two-thirds of Russia's normal purchases, amounting to 13,000 tons or more, and notwithstanding the cessation of pleasure automobiling in England, France and Italy, the world's consumption has kept pace with enormously increased production. (2) With the exception of the Central Empires, Russia and Belgium, crude rubber consumption has greatly increased in all countries manufacturing rubber goods. (3) In three years American consumption has jumped from less than half to fully two-thirds of the world's production. (4) The bulk of this goes into automobile tires, and the phenomenal growth of the motor car industry shows no sign of abatement, except as a temporary measure of war emergency. (5) Government estimates indicate that curtailment of the manufacture of automobiles for pleasure driving during the war will be offset as regards rubber consumption by the enormous demands for both pneumatic and solid tires for war purposes, such as trucks, ambulances, tractors, airplanes, motorcycles and rubber footwear, clothing, ground sheets, etc. (6) The Brazilian output of wild rubber for several years past has remained stationary at about 37,000 tons with no early prospect of much increase. (7) Whereas in the three years 1910 to 1912 inclusive, 760,000 acres of plantation rubber were planted in the Middle East and are now in bearing, only some 410,000 acres were added during the four years 1913 to 1916 inclusive, the greater portion during the first two of these years.

From the foregoing it seems reasonable to assume that the demand will continue to expand very nearly as in the past.

NO SUBSTITUTE FOR HARD RUBBER.

FOR years a great variety of substances have entered the field as avowed competitors of hard rubber. Aside from the numbers of compositions that have found industrial uses and that often serve an excellent purpose, such materials as celluloid, galalith and the condensation products, were the most promising. They, too, found wide markets and many uses, and in certain lines they even took the place of hard rubber. But they did not drive it from the field or even threaten its supremacy. Indeed, in the face of their competition the hard rubber business expanded and grew. A notable instance in point is the record of one maker of hard rubber battery jars. In 1912 he built 36,000 jars; in 1913, 46,800; 1914, 180,000; 1915, 360,000, and in 1916, 598,898.

CALLING THE RUBBER TRADE TOGETHER TO MEET THE Rubber War Service Board was an exceedingly wise move. Its distinct advantages were, first, an added confidence in the desire of the Government to assist the rubber industry in every possible way, as voiced by the administration officials who were present; second, a feeling of renewed confidence in and sympathy with the rubber men on the board through personal contact; third, the clearing up at one sitting of a host of vexing questions as to the working of the rubber restrictions under a great variety of different conditions.

THE ACTION OF THE CHEMISTS' CLUB OF NEW YORK in barring German from conversation within its portals is to be commended. Not that there is aught against the language itself, aside from its tendency to lacerate the vocal chords, but it is the voice of the enemy and suggests the *Lusitania*, Edith Cavell, Captain Fryatt, Kultur and Kaisers.

Its study in many institutions is, for the moment, also taboo, which is well. Killed by its own people, its future lies with the dead languages.

The United States Can Produce Its Own Rubber.

By the Editor of The India Rubber World.

That the United States is faced by a long, bitter conflict is incontrovertible. In it, not only men and money, but supplies of raw materials must be found to bring about victory for the right. Of the raw materials absolutely necessary for war work, none is more vital than india rubber. Through personal investigation the Editor of The India Rubber World is therefore gratified to give the story of a new rubber producer found in the United States, with the hope that it will prove of value.

THE possible shrinkage of crude rubber through embargoes, U-boats or governmental restrictions has threatened the American rubber trade ever since 1914. As the oldest, if not the wisest of the world's rubber editors, it seemed my bounden duty to discover some way out for the industry of which I am very proud and whose good I have always at heart. This involved a search for new sources of rubber which, considering the scarcity of shipping, should be in or very near our own country. In the course of my peregrinations I found what I was looking for, new rubber producers in quantity. As to quality, that remains to be seen.

I was in the Everglades of Florida when I got my first clue. This was followed to Arizona where I definitely got word of the California experiments, and then it was only a rumor of an examination of the tar weeds. It did not seem possible that they could be rubber producers, but very slender clues often lead to big things in rubber, so I followed on to San Francisco, to Berkeley and to Professor H. M. Hall. There I found that it was not the tar weed at all, but the rabbit bush that was being investigated. Let me hasten to explain that this is not the Colorado rabbit weed, the *Picradenia floribunda utilis* exploited some years ago. They are quite different plants of the *Chrysothamnus* and *Ericameria* families, but none the less rubber bearers.

HIS EXCELLENCY GOVERNOR W. D. STEVENS, HEAD OF THE CALIFORNIA COUNCIL OF DEFENSE, NOW INVESTIGATING RUBBER.

The beginning of this interesting investigation was when California created a council of defense, the head of which was the Governor of the State. Under him were various committees that rounded up information on all subjects relative to war supplies. In certain of the scientific sections were eminent botanists, and to two of them, Professors Harvey Monroe Hall and Thomas Harper Goodspeed, was given the task of reporting in full upon the rubber-bearing shrubs that grow in the vast valleys and sterile slopes of the Sierras. Not only was the work new, but so were the plants, except as they had been noted botanically. Indeed, after a season of hard work, of segregation, of analysis, the two experts gave only the generic names and refused to deal in species. In the meantime, with samples of rubber, chewed out of the bark by Indian squaws, with hundreds of pressed specimens in the herbarium, and with root sections and bark sections by the hundredweight, this season's survey is about to begin. It will consist of visits to the places where the plants are found in the greatest abundance, the examination of quadrats planted with seeds and cuttings last year, and an estimate of the territory covered by these plants. These are to be followed by estimates as to the number of plants, the rubber contained in them, and their accessibility. What this will lead to commercially the experts do not even attempt to predict. They know that there are plants containing 2, 3, 7, and 10 per cent of rubber, and this means millions of pounds. Working for the Council of Defense they plan to be thoroughly informed concerning this source of rubber. Then, were the United States for any reason cut off from its supplies of crude rubber, this source could be utilized promptly.

The *Chrysothamnus*, the giant rabbit bush, grows six or more feet in height, is a perennial, and a mass of golden blossoms in flowering time, while one species possesses a most agreeable aromatic odor. This type contains 6 to 7 per cent of rubber and can probably be propagated from cuttings. The rubber from it seems to be a little better than that from guayule. The *Ericameria*, the "dwarf rabbit bush," is very small and grows sparsely in rocky places. Its rubber content is 10 per cent, but the product is very short and very resinous.

It must be remembered that there are probably hundreds of species and the botanists have not only the task of classifying them, but of recording the differences in the rubber content, the effect of temperature, rainfall and location, and of the identification of such as can be made commercially valuable.

Although such is not the main purpose of the investigation, it will unfailingly bring up the subject of utilizing the great waste lands of the Sierras in the cultivation of these rubber producers. As they are found from 1,000 up to 7,000 feet altitude, and as the lands are so available and cheap, and furthermore as the plant needs no irrigation and is easily propagated by cuttings or by seeds, the attempt is sure to be made. It is only fair to state, however, that such attempts should be undertaken only after the most thorough investigation and under the watchful care of those perfectly familiar with the shrub. There is also the possibility that it might be profitable to erect extraction plants and get the rubber out in quantity. Then again it might not be. Certain it is, however, that the rubber is there and in an extremity would be very valuable.

With true professional reticence the investigators have withheld all newspaper publicity, as they do not wish to arouse false hopes. All that has been published so far is a brief communication to "Science," designed to call the attention of other botanists to this work, with the hope that their observations in the same line will be of value. This paper reads as follows:

The Department of Botany of the University of California has undertaken a study of certain West American shrubs belonging to *Chrysothamnus* and other genera of the *Compositae* to determine whether or not an emergency or supplementary supply of rubber exists in such native plants. This investigation is one of the projects of the Botanical Sub-committee of the Pacific Coast Research Conference acting under the Council of Defense of the State of California. Results thus far obtained indicate that the total amount of rubber present in these native species is considerable, but that the percentage yield of individual

plants is too small to render its extraction profitable at present prices. If, however, the importation of raw rubber should be

THE CHRYSOTHAMNUS OR "GIANT RABBIT BUSH."

curtailed through enemy action, this emergency supply existing within the border of continental United States could be drawn upon. It might be noted here that the quality of this new rubber is, according to rubber experts, somewhat better than the best grade of guayule, but not as good as Pará.

The choice of *Chrysothamnus* and related genera as the plants first to be investigated was the result of a preliminary examination made in 1904. In September of that year the late Judge A. V. Davidson, of Independence, Inyo County, California, sent some twigs to the Department of Botany for identification, with the information that the Indians prepared from the plant a sort of "gum" which they chewed. The plant was a species of *Chrysothamnus* of the *graveolens* group. Further samples were submitted at our request, and in October, 1905, a preliminary chemical examination of them was made by Professor G. E. Colby, of the California Experiment Station. This examination indicated the presence of rubber, but not in sufficient amount to warrant further investigation. A report to this effect was made public in the press, and as a result some further examinations were made by at least one commercial rubber company. The matter was soon dropped, however. It is probable that the plants used in this commercial examination were of an entirely different species from those now being examined.

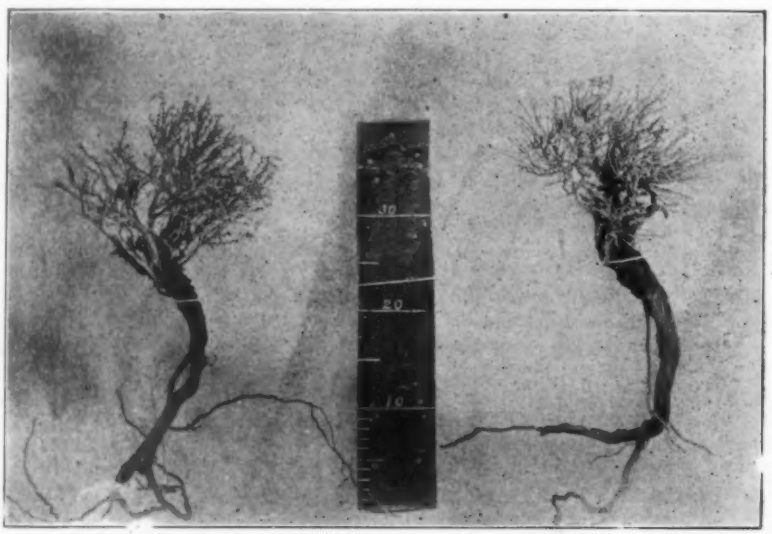
During the last year some 200 different plants have been studied in detail, both in the field and in the laboratory. As a result it can now be definitely stated that many species of *Chrysothamnus* (formerly known as *Bigelovia* and commonly called rabbit brush, or golden brush) carry rubber in at least small quantities and that it occurs also in three species of *Ericameria* and in one species of *Stenotus*.

One species of *Ericameria* carries 9.5 to 10 per cent of pure rubber, in addition to about 9 per cent of acetone extractable resins, etc. Although this plant possesses agricultural possibilities, it is too small and occurs too sparingly to be considered as a source of wild rubber. In six species of *Chrysothamnus* the older parts carry from 3 to 5 per cent of rubber. This percentage is for dry rubber and does not include the resins or other acetone soluble impurities. The term "species" is here used in a narrow sense. The six species referred to are all allies of *C. nauseosus*, *C. graveolens*, or *C. teretifolius*. Further taxonomic studies will be necessary before final determinations can be made, since some of the forms do not correspond to any of the described species.

The most important of the above species is a large shrub, the rubber-producing portions of which commonly weigh from two to ten pounds, with a maximum observed weight of about 60 pounds. It forms nearly pure stands of considerable extent in some parts of the Great Basin area. Histological examinations indicate that the rubber content is fairly uniform throughout its distribution. Much care, however, must be exercised to avoid confusion with closely similar forms, some of which exhibit marked fluctuation in their rubber content, while others uniformly carry not even a trace of this substance. Professor P. L. Hibbard of the California Experiment Station, who has made the chemical analyses, reports for the most important form as follows:

	Acetone Extract.	Benzol Extract.
Plant 1—		
Base of stem	3.74 per cent	5.06 per cent
Plant 2—		
Base of stem	3.90 per cent	4.40 per cent
Assorted plants—		
Trunk and root bark	3.90 per cent	7.80 per cent

These figures are for fairly dry shrub. If based upon perfectly dry shrub, the percentages would be somewhat higher.

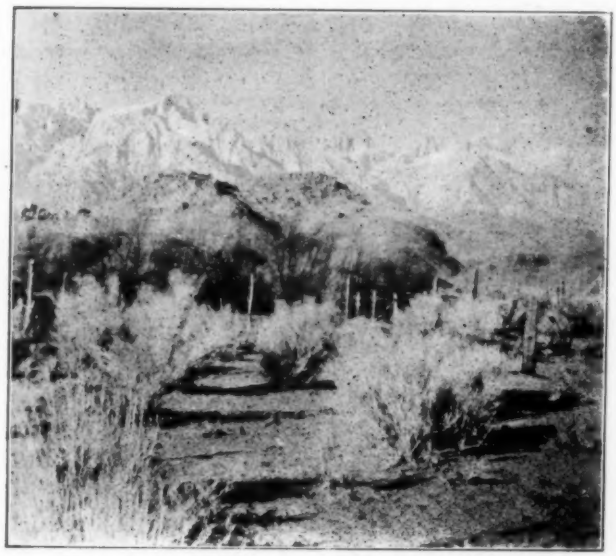


THE ERICAMERIA OR "DWARF RABBIT BUSH."

Field experiments have been instituted to determine the feasi-

bility of harvesting the rubber without killing the plants, and also to increase if possible the amount of rubber-bearing tissue. Some attention is also being paid to the possibility of bringing the plants under culture for commercial purposes.

It is now proposed to extend greatly the scope of the investigation and to include many more species. In addition to locating the principal supply of the more promising species we hope to



THE CHRYSOTHAMNUS AS IT GROWS IN THE SIERRAS.

study more intensively their ecologic behavior, seasonal variation, reproduction, and other points of scientific as well as economic interest. We shall, therefore, be extremely grateful for samples from any district in which the plants grow, and shall be pleased to send instructions for the taking of these. However, even a small portion of the basal part of the stem will be helpful, since this will enable us to make a preliminary examination to determine the desirability of securing more abundant material.

ANOTHER RUBBER SHRUB?

FROM one of the great countries to the south of the United States comes the following confidential communication. It is written by a man thoroughly conversant with tree rubber and not likely to be misled by enthusiasm or lack of knowledge.

MY DEAR MR. PEARSON:

I wish to consult you on a very important matter which, at the same time, is of great interest to me, and I am doing so in a confidential way, simply because it is only an idea, and may be nothing more, after all. It is this: in exploiting my lands at —— I came across an inexhaustible supply of a dwarf rubber plant. It is neither a tree, nor can it be called more than a simple shrub. It is to be found in immense plots and hardly any other plant intervenes where these abound. The rubber yielded by these plants is excellent and it seems to me that the only lucrative method of exploiting them would be to take—I mean extract—the rubber by means of machinery. This because it grows very rapidly after being razed to the ground. The roots spring up again, with the first rains, and in the following year, I am informed, come up again and develop to their former height in another year. It is true that these trees have a quantity of woody substance which does not exist in *Parthenium argentatum* or Mexican guayule. But as I have never seen the guayule, nor do I know the process by which the rubber is extracted from the Mexican plant, I am not in a position to judge whether the process used in its extraction could be safely applied, and with equally good results, to this species.

As I know you to be entirely conversant with all the details of the guayule, and perhaps you know all about this shrub, I would be very much obliged to you, if you could assist me with your immense knowledge of the guayule business. As far as I can remember, there is a secret process involved, which I believe is controlled by the inventor of the machine. Right on the spot I have immense volumes of water power. And the product, when finished, can be brought up to the Atlantic over water on the river.

My only object in asking you to assist me in a confidential way is to avoid questions of all sorts from all places before any definite information can be given. I don't know that I can say much more except that these trees, when planted by stakes, produce excellent rubber in their third year, and a year later, if propagated by seed. God knows that the price of rubber is none too inviting at the present level; but if this proposition can be handled by machinery there is money in it.

The climate is simply superb and everything light and agreeable—but of course, it is a new world and it will be many years before we can have the advantages of club life in the neighborhood.

Thanking you in anticipation and with warm regards.

Very sincerely yours,

For the information of our correspondent it should be noted that as the shrub he describes is a latex producer, guayule machinery would not be adapted for extraction purposes. Nor has any process yet devised successfully solved the problem of latex extraction by machinery other than in the laboratory. It doubtless will be accomplished in time, however.—THE EDITOR.

A SELF-PROPELLED THRIFT EXHIBIT.

That "economy is wealth" and that prevention of waste is real economy are being taught practically and graphically by the Westinghouse Electric & Manufacturing Co., at its plant at East Pittsburgh, Pennsylvania. A storage battery truck has been fitted up as a traveling exhibit, and is driven up and down through all the aisles of the shop. The truck is loaded each day with the waste collected, and placed in two compartments—one labeled, "Wasted food brought from your homes"; the other, "Wasted material belonging to the company." In the first compartment are found scraps of bread, cake, crackers, pickles, butter, cheese,

THE WESTINGHOUSE THRIFT EXHIBIT.

fruit, etc., while the materials in the other are copper, zinc, lead, mica, rubber, gum, felt, etc., much of which can be utilized in the factory or sold to scrap dealers.

Such an object lesson is practical and valuable and should inspire the workers to thrift, which would be beneficial both to themselves and the company.

Crude Rubber Imports Restricted and Prices Fixed.

Ten Thousand Tons Per Annum to Be the Basis—Government Requirements Come First—Balance to Be Allocated to Manufacturers Pro Rata According to 1917 Consumption—Regulation of Prices Prevents Speculation—538 Rubber Men Meet at Rubber Association Luncheon to Discuss the Restrictions.

CRUDE rubber was placed on the list of restricted imports by the War Trade Board on May 7 in pursuance of its policy of conserving tonnage for military requirements through the limitation of oversea imports as far as compatible with national interests and necessities. After consultation with the War Industries Board and with representatives of the rubber trade it was decided to place imports of crude rubber on a basis of 100,000 long tons per year, amounting to a reduction of somewhat over one-third, as imports during 1917 had been at the rate of 157,000 tons per annum. The Bureau of Imports was accordingly instructed tentatively to limit the issuance of licenses to a total of 25,000 tons for the current quarter from May 6 to July 31, inclusive.

REGULATION OF PRICES.

As a preliminary step to the restriction of crude rubber imports, and to prevent a speculative rise in the prices of crude rubber or an unjustified increase in the prices of manufactured rubber goods, the War Trade Board several days previously put into effect an option system of regulation of rubber prices, through which the cost of crude rubber is limited, from the time of import until it passed into the hands of the manufacturer, to a reasonable maximum, based upon the quotations current in the trade when the possibility of import restriction was first mooted. Possibilities for profiteering and speculation were thereby obviated. The first prices to be fixed were c. i. f. New York as follows: First latex crêpe, 63 cents; Smoked sheet, 62 cents; Upriver fine, 68 cents. Other grades were valued proportionately and prices fixed by the War Trade Board. The salutary working of the option system was immediately noted in the elimination of the speculative advance which had developed in the prices of crude rubber during the progress of the conferences regarding restriction.

The War Trade Board has with reluctance taken this step affecting the fourth largest industry in the country, but the imperative demand for tonnage for military purposes necessitated action. The board has been met with the most patriotic spirit, however, by the representatives of the rubber industry, who recognize the vital need of the hour and have acquiesced in the limitation of imports. The prevailing attitude of the trade appears to be well summed up in the following statement issued by Colonel Samuel P. Colt, president of the United States Rubber Co., New York City. Said he:

I have been familiar with the plan of the War Trade Board and of the Shipping Board and am heartily in sympathy with and shall support to the fullest extent their program of restriction. I am sure that there is nothing in the plan which will work any serious hardship on any division of the rubber industry and I wish to state in most emphatic terms that the United States Rubber Co. will do all in its power to induce its customers and all retailers to refrain from any attempt to profiteer by exacting unnecessarily increased prices, or to anticipate their needs in rubber products of any character whatsoever.

The purpose of the decree is to release for war work ships now employed in carrying rubber, and the company which I represent stands ready to undergo any sacrifice in this endeavor to cooperate with the Government.

OUTPUT OF RUBBER GOODS WILL BE LIMITED.

This restriction will naturally involve some limitation in the output of manufactured rubber goods, but it is believed that this will be accepted with equal patriotism by the consuming public, particularly since the establishment of a limited maximum price for crude rubber should operate to render unnecessary and unjustifiable increases in the cost of the finished products.

RESTRICTION PLAN EXPLAINED AT RUBBER ASSOCIATION LUNCHEON.

At a luncheon given by The Rubber Association of America, Inc., for the War Service Committee of the Rubber Industry of the United States of America on May 10 at the Waldorf-Astoria Hotel, New York City, the government plan to restrict crude rubber imports was explained and discussed. The rubber men began to gather at twelve o'clock and an informal reception was held until the luncheon hour at 12.45. There were present 538 individuals, representing the rubber and allied trades from all parts of the United States, even from the Pacific Coast.

Those at the speakers' table were Bertram G. Work, president of The Rubber Association of America and chairman of the War Service Committee; P. Chauncey Anderson, vice-chairman of the Contraband Committee of the War Trade Board; Fred B. Peterson, director of the Bureau of Imports of the War Trade Board; Charles Neave, general counsel to The Rubber Association of America; Charles T. Wilson, chairman, and William E. Bruyn and W. J. Kelly, of the Committee on Rubber and Kindred Products; H. S. Firestone, James Newton Gunn and F. W. Litchfield, of the War Service Committee; George B. Hodgman, of the Committee on Rubber and Kindred Products and the War Service Committee, and Homer E. Sawyer, vice-president of the United States Rubber Co.

THE ADDRESSES.

After the luncheon, the meeting was called to order by Bertram G. Work, chairman of the War Service Committee, who, remarking that he had not been president of The Rubber Association of America long enough to be an expert in presiding, promptly disproved his own statement by clearly and briefly outlining the purpose of the meeting and by his subsequent introduction of speakers and answers to questions. Mr. Work said:

This meeting was called by the War Service Committee in order thoroughly to acquaint the entire industry, as completely as possible at this time, with the regulations and restrictions imposed by the Government.

The War Service Committee, in acting as a clearing house between the Government and the industry, has very grave responsibilities, and undoubtedly has been subject to criticism by some members of the industry not familiar with the facts. It therefore seemed advisable to call you all together for two reasons: first, to clear up any misunderstandings, and, secondly, that helpful suggestions may be made.

First, let me impress upon you all the necessity of approaching the entire matter with a receptive mind. We must adjust ourselves and follow the current of events, or court disaster.

The Washington officials with whom we come in contact are conscientious and broad-minded men. They fully appreciate the necessity of keeping our industry in a healthy condition, both as a war industry and for the general welfare of the country. If they make mistakes, it will be on account of lack of adequate facts and information from us. They believe and we believe that, with close harmony and cooperation, the industry will come through the present emergency with the least hardship to all.

A few weeks ago a number of representatives of the industry were called to Washington for a conference with the Shipping Board. The committee had anticipated such a meeting, and had prepared statistics to show the relatively unimportant amount of tonnage that could be saved by curtailing the imports of rubber. The answer was: "The last ton may win the war."

The statisticians of the Shipping Board had compiled figures showing that 100,000 tons of rubber per annum was sufficient for the country's actual necessities. We endeavored to show that that 100,000 tons was totally inadequate, which developed the fact that the quantity they had determined upon was simply tentative, and they asked our cooperation in giving it a trial for three months, after which time it may be changed in accordance with facts developed.

That is a very important part of the whole program, gentlemen. In other words, we were asked to cooperate with the Government, and work with them to the end that shipping space might be conserved, and at the same time no great injury done. We all know that some curtailment can be made. The permanent amount of this curtailment is yet to be determined. We also know that for some months to come there will be no actual shortage of rubber in the United States, as the stocks on hand and in transit April 1 were the largest in our history. For the three months at present under restriction the only tangible result will be the reduction of our surplus.

The Shipping Board made the recommendation, and the War Trade Board then undertook to make it effective. The plan of allocation is the fairest, and in fact the only practical one that could be devised. The carrying out of the provisions of the distribution will be complicated and difficult. The War Trade Board has expressed its desire to make the allocation in a manner which will be most equitable to the industry as a whole, and to each individual manufacturer, large or small. Keep this underlying thought before you all the time, and remember that cooperation will better conserve your interests than criticism.

Many government officials have been good enough to speak highly of the cooperation they have met with in the rubber industry. Our ambition is not only to maintain this reputation but to improve it, so that, when we have won the war, we can all look back with pride to our contribution.

A very effective address was made by J. Newton Gunn, president of the United States Tire Co., who spoke in patriotic vein, forcefully and convincingly, as follows:

If I were to put very pointedly the particular thought that I think we should all have before us at all times, it is that we must not be panic-stricken. The first business of every man here is war. His second and supplementary business is the manufacture and sale of rubber products; and if, in the observance of the rules that are laid down by the War Trade Board and the Shipping Board it becomes necessary for us, as it is necessary, to adjust ourselves to their needs, we are going to do it, we are going to back the Shipping Board and the War Trade Board, or any other department of the Government, 100 per cent.

At the present time, you have received two communications, one relating to the fixing of the price of rubber in the New York market, through the giving to the Government of an option on rubber at certain prices. That provision was made for your protection, and to prevent any manufacturer or importer, so inclined, from becoming panic-stricken and from doing things that he should not do, that were against his own interests; and I think our thanks are due to the War Trade Board and the Shipping Board for that first action.

The second relates to the need for ship space, and knowing that we have on hand and in transit, so that we will soon have on this continent, as your chairman has told you, a large stock for immediate needs, the restriction placed on the import of new rubber from the 8th of May for a trial period of three months, is not in any way a serious matter, and we must all understand that it is not serious, and that there is not the slighest occasion for any one of us, either through fear or timidity of any nature whatsoever, either to hoard our stocks, or to encourage our customers to buy unnecessary goods or do anything else that would tend to destroy the normal operation of our business. If the necessity continues for a restriction of ship space, and through the restriction of rubber imports to release more shipping space—if that continues, it will necessarily reduce eventually our surplus, but you can prevent that being a hardship on the country, and it is your absolute duty to so prevent it, by preventing your customers demanding from you more than their normal supply of products of any line whatsoever, whether it is hot water bottles, or shoes, or hose, or tires, or anything else that you happen to make. They must not be allowed to anticipate their needs, or hoard; for they will be doing you an injury, to say nothing of the greater injury to the country.

If we could adopt a war song for this industry, I should say that we should take that good old anthem, "Sit down, sit down, sit down, you're rocking the boat."

But seriously, gentlemen, there are a great many regulations of a minor sort, that no doubt are important and will be put out from time to time by the War Trade Board. Questions will arise in your minds as to how the new manufacturer who started in business only last year is going to be taken care of. That has already been a problem and has been thought of by the War Trade Board, and provision will be made for that. At the present time you have been told that in addition to all of the rubber that the Government needs during this period, permission will be given to import new rubber to the extent of 7/16, or 1/4 of 7/16, of your 1917 production, and you may rest assured that that will work no hardship.

Now, after the three months' period, such other ruling will be made as the national conditions warrant and demand; but we of the War Service Committee have learned to have implicit confidence in the attitude and the spirit of all of the gentlemen in Washington, of both the War Trade Board and of the Shipping Board, and we want to have their confidence, which they have been kind enough to express, and we want to continue to deserve it.

The regulations for the restriction of the amount of rubber to be imported, we who have been nearer to the problem believe are not only fair, but absolutely will work neither hardship nor any injustice to any concern, whether he is a large manufacturer or a small manufacturer; so that it is necessary to have it clear in your minds that no injustice can be worked to the small manufacturer simply because he is small, or that he will be at any disadvantage whatsoever as against the large manufacturer.

There are other questions that will arise in connection with this general program. It may be necessary to take some action either through trade associations or through the voluntary acts of you gentlemen here, to prevent profiteering; that is, there is absolutely nothing in the present rubber situation that warrants any retailer or dealer in products which you have sold him, in making excessive price demands on his customers. That is one of the problems that we must help these gentlemen in Washington to solve, and they are going to call on us. If we show them our immediate support in the spirit that is reflected through the entire trade after this meeting here to-day, I am sure we will have their confidence and they will give us their support and lend us the force of any authority that they have in carrying into full effect any program that we may suggest.

It is with the greatest amount of sincerity and earnestness that I urge that we should be absolutely free from any feeling of timidity as the result of this program, and have the full assurance that our business is going on, in time perhaps a little restricted, but it will not hurt. But even if it does hurt, it is part of the war, and we are going through with it one hundred per cent.

Charles Neave, general counsel of The Rubber Association, in a few well-chosen remarks congratulated the rubber trade on having the services of men so well able to conduct delicate and important negotiations with government officials effectively and diplomatically. He pointed out that these officials were also business men approaching their many problems to help win the war without bias or antagonism, and emphasized the fact that they often act on more intimate knowledge of national necessity than is available to the people at large and deserve ready cooperation in their whole-hearted efforts to meet the present emergency with as little inconvenience to business as possible. Nothing, he said, would happen to the rubber industry, any more than to the business and affairs of any private individual, both of which must be sacrificed to the common good.

P. Chauncey Anderson, vice-chairman of the Contraband Committee of the War Trade Board, then referred to the work of the War Trade Board with The Rubber Association of America, covering a period of several months, and expressed the appreciation of the board for the fair spirit of cooperation and speed which had been shown in every detail and in every branch of the trade. With the present good progress of the work of the Shipping Board and Emergency Fleet Corporation he hoped that the control of industries and of raw materials would be very limited, and gave assurance that should the three months' trial period demonstrate necessities for change they would receive the most careful consideration. Mr. Anderson spoke in part as follows:

In detailed results, the work of the War Service Committee has been of great benefit to every department of the service in the Army and in the Navy. The information that has been given to them, the facilities that have been afforded to them, and the knowledge that has been conveyed to them, have been such as they could have acquired in no other way whatever. And I am sure that most of the people in Washington appreciate that to the fullest extent.

Various methods of exercising such control as has been exercised have of course been from time to time suggested, but on the whole, the War Trade Board decided that in this country, based on democracy and democratic principles, the thing to do was to outline plans and leave it to the industry itself to carry them out, taking their suggestions, taking their views, and placing upon themselves the work of producing the desired results, in full reliance that all of you, all of you who are good Americans—and you all are—would cooperate to the fullest extent.

It was based on that theory that The Rubber Association has been called into conference, and through it the rubber industry has replied to the fullest extent to all the demands and suggestions of the War Trade Board. The War Trade Board and the other boards there in Washington rest in full confidence that that condition will continue, and we feel that we are entirely safe in leaving the future development of this problem, the working out of its details, in the hands of you men here present.

Fred B. Peterson, director of the Bureau of Imports of the War Trade Board. then outlined in detail the plan of restriction and allocation agreed upon. Said he:

As you know, the necessity for tonnage has compelled the Government to limit our importations. To effect that end, various lists of restricted imports have been issued. Two have been gotten out so far, one on the 23rd of March, and the other on the 30th of April. These lists embody chiefly articles which are less essential, which we feel in the present emergency we might be able to get along without.

To eliminate the importation of those articles is not sufficient to accomplish the results which must be accomplished. We must reduce the importation of articles which are vitally essential, reduce them to the minimum which the public safety will permit. For that reason this retriction on the importation of rubber has been made, a reduction on a basis of 100,000 tons for the ensuing year. This is to be tried out at first for a three months' period; that is, from the present time until the 1st of August.

The method by which we are going to undertake to do this has been worked out after the most careful consideration, after consultation with your trade, which it is a pleasure for me to say is perhaps the best-organized of the trades dealing in imported materials, and, I think it is only fair to say, the most patriotic from the standpoint of being willing to stand back of the Government and abide by whatever restrictions are apparently necessary to be made.

The plan is to permit the government requirements, that is, the requirements for rubber for completing government contracts, to be met in full. What is left of the 100,000 tons permitted, after these requirements have been met, is to be allocated among the manufacturers on the basis of their consumption in 1917.

It works out in this way, that the government requirements are apparently 35,000 tons for the year; that leaves 65,000 tons to be allocated on the basis of your last year's consumption. This works out to a fraction of seven-sixteenths. Figures have been computed, based on the reports made to the War Trade Board through The Rubber Association, of the consumption of 1917. These figures have been compiled by the expert accountants of the War Trade Board, and the amount which each manufacturer is entitled to, on a basis of seven-sixteenths, is estimated from those figures.

We will, within the next few days, send out letters to the manufacturers informing them of the amount of their allocation, on the seven-sixteenths basis. This allocation is not their allocation for the entire year, mind you, but the allocation for the present period ending on the 31st of July.

When the manufacturers receive these notices of what their allocation is, they are at liberty to apply to the War Trade Board for certificates entitling them, or others in their behalf, to receive import licenses for that amount of rubber. You will be able to receive this all in one certificate, if you so desire, or if you wish to make this importation through various importers or in various amounts, you may apply for these certificates in whatever denomination or whatever size you may desire, and to meet your requirements, so long as the total does not exceed the amount of your allotment.

When you have received this certificate or certificates, you can place them in the hands of your importers, if you are not direct importers yourselves, and these certificates must accompany the application for the import license. When the application is received for the import license, accompanied by a certificate or certificates, equaling the amount of the application, a license, if otherwise in order, will be issued, and the importation may be made.

All outstanding licenses for the importation of rubber have been revoked as to shipments made from abroad after May 8; that is, any rubber which is in transit on May 8 is not subject to this allocation and can be brought in under the licenses which are now in existence. But for all rubber that is to be shipped from abroad after May 8, it will be necessary to make new applications, and these applications must be accompanied by the certificates showing that the manufacturer is entitled to receive that amount of rubber under his allocation.

Now, gentlemen, we are entirely appreciative of the magnitude of this undertaking, of its importance to you gentlemen who represent the fourth largest industry in the United States. We are going to endeavor to do this with all fairness, and in a manner which will interfere with the ordinary course of your business to the least possible degree. You understand that our duties in this respect in Washington are not altogether pleasant. It is a harsh thing and an unpleasant thing to force any loss of any kind or any restriction or interference with the business in any branch of industry. On the other hand, we have our duty to perform to the men who are risking their lives in France, and we stand between the two and are endeavoring to do the best we can; and we ask and know that we will receive your full cooperation and support. I thank you.

THE GENERAL DISCUSSION.

The meeting was then thrown open for a general discussion in order that questions might be answered and light thrown on any doubtful points. A colloquy then ensued in part as follows:

HENRY C. PEARSON, EDITOR OF THE INDIA RUBBER WORLD: As I understand it, the rubber that comes by water, all ship, you keep tabs on, and only so much can come in. Now, unfortunately, Germany has put a bar between us and Central America, through the dissatisfaction in Mexico, and at present we only get in a little Mexican rubber. But does that mean that if that is all straightened out, Central American rubber, coming by railroad, is also a part of the 100,000 tons?

MR. PETERSON: No, sir. It perhaps should have been more clearly stated by myself and the other gentlemen who have spoken, that this limitation applies only to the importation of rubber from overseas, and you are still at liberty to bring in rubber from Mexico, independent of this restriction.

W. H. MORGAN, Representing the J. B. Camors Co., New Orleans, Louisiana, and T. N. Morgan, New York: Does that include Central America?

THE CHAIRMAN: Mr. Peterson says that the answer to that is that if it comes by ship it is included in the allocation; if it comes by rail, it is not. As I understand it, there is no railway from Central America, so it cannot come by rail.

MR. PEARSON: That answers that. Now, the rubber trade is a very elastic trade. No crisis has ever come to the rubber manufacturer but that, some way or other, he has run his mills and turned out good goods, with rubber or without rubber. Now our great trade is bigger and better and broader than it has ever been.

Now, for your own satisfaction, how would it be if something like this happened: You know, when guayule was first spoken of, everybody turned it down; and yet the time came when that little desert shrub, with only ten per cent of a poor grade of rubber in the bark, sent in nineteen million pounds of rubber into the United States. Now, for your own satisfaction, how do you know but that, say in the Everglades of Florida, there is another shrub that will give you eight or ten per cent of rubber, and that will give you nineteen million pounds, that does not come overseas? Here is hoping!

CAPTAIN ERNEST E. BUCKLETON, Northwestern Rubber Co., Liverpool, England: I would like to know whether waste rubber and reclaimed rubber is included in that 100,000 tons of raw rubber.

Mr. PETERSON: No, sir, it is not. The restricted list is not closed, however.

N. C. Doss, president Doss Rubber & Tube Co., Atlanta, Georgia: I represent 1,700 stockholders, with a capitalization of $1,000,000 only. Our plant is to be opened on June 1. We have purchased rubber, or contracted for it, to be delivered in May, June, and so on up to December, so much a month. We did not purchase any in 1917. The question is, with me, are we going to be able to get our rubber? We have never produced so far. Can we open?

MR. PETERSON: If you have got government contracts, you can get all you want. If you have not government contracts, under the present arrangement you would be limited to purchasing your supplies for the present, from what free rubber

there may be in the country at the present time, which does not come under this allocation—rubber, in other words, that left from abroad prior to May 8. This present allocation, you understand, is effective only up to and including July 31, and it is quite possible—I cannot state what will take place in the future, but I think it is within the realm of possibility, that new concerns will be taken into consideration in subsequent allocations; but for the present you would be limited to the purchase of free rubber, that is, rubber that left from abroad prior to May 8; or, if you have government contracts, you can purchase, you will be permitted to get in rubber to the full extent of your government requirements.

J. H. DUGAN, National Rubber Co., Pottstown, Pennsylvania: I represent a small company. Last August we had coal in transit, and it was seized by the railroad company, the result being that we were idle three months entirely, a month and a half running at less than half capacity. That reduced our consumption of rubber about forty per cent. Will our allocation be based only on the amount we used in 1917, or in view of the fact that it was through government means that we shut down, will we be allowed to present revised figures showing our previous consumption, say for 1915 or 1916? That is a point on which I would like information.

MR. PETERSON: The present allocation is based on the figures which were given to the War Trade Board to the questionnaires which were sent out, requesting manufacturers to give the amount of their actual consumption for 1917. That forms the basis of the allocation. I may say that these figures are all going to be verified by expert accountants, all of these statements which were sent in, and you will all be given a chance then to make a proper correction, if there have been errors in the figures which you sent in.

It would not be possible, under the present plan, for you to secure more rubber than your correct consumption for 1917 would indicate. However, you are at liberty to make application for any departure or variation from the rules that you think the justice of the occasion would require. You are also, of course, at liberty to purchase the free rubber that is in the country, the rubber that left from abroad prior to May 8, and also to get all that you can use in govenment work.

R. H. SOTHERLAND, Mansfield Tire & Rubber Co., Mansfield, Ohio: Is there anything to prevent the buyers of rubber from anticipating their needs, and buying for September, October and November shipment from the Far East, their normal demand, from the Far East, across the water?

MR. PETERSON: Well, it is impossible to predict what regulations will be put into effect after July 31. I would suggest that it might be well to make your contracts subject to your ability to get an import license.

H. O. SMITH, J. & D. Tire and Rubber Co., Charlotte, North Carolina: I want to inquire, in case anyone failed to take or did not require their full allotment for this quarter, if that would apply on a later period during the year? That is to say, if their present supply was sufficient to keep from drawing upon that allotment over this quarter would they be able to apply that on a later period during the year, as much as they might not have taken up?

MR. PETERSON: No ruling on that has as yet been made. You will realize, of course, that this is entirely new, and that there are many questions such as you have just propounded that will arise in connection with the administration of it, and those questions will be taken up and determined as they are presented. That which you have suggested is something which has not as yet been passed upon. We will try to do the fair thing by everybody.

C. D. GARRETSON, Electric Hose & Rubber Co., Wilmington, Delaware: In considering the rubber which the gentlemen will use in this coming year, are you also to take into consideration the amount which will be used on sub-contracts, or only on direct contracts with the Government?

MR. PETERSON: We will take into consideration the use in indirect contracts, if the proof is presented to us that it actually is going into government work.

MR. GARRETSON: That includes the Emergency Fleet Corporation?

MR. PETERSON: Yes, for which we will require proof of the existence of a government order; not in general that it may be used for government work, but that there is actually a contract existing for that.

A. GUTTMAN, representing Paul Bertruch, New York City: I desire to ask whether importations will be controlled at the point of shipment, that is, across the water, and if not, what will happen to a consignment for which the consignee here has not received the manufacturer's license? What will the War Trade Board do about that?

MR. PETERSON: That will be controlled at the point of shipment. Instructions have already been sent out to all United States consuls to refuse to visé consular invoices, unless the shipper is able to furnish the consul with the number of the import license. So that the shipment cannot start from abroad until a license for its importation has been issued.

L. T. PETERSON, Republic Rubber Co., Youngstown, Ohio: Will railroad contracts be considered government contracts?

MR. PETERSON: No direct ruling on this has as yet been made, but I feel quite confident myself, although I do not speak officially, that they will be so considered. Mind, that is not official.

MR. YATMAN, Rubber Co., Newark, New Jersey: In the case of a manufacturer who has contracts with a manufacturer of munitions, where the factory has not been taken over by the Government, will the supplies that he is furnishing to that munition factory be considered as a direct contract, or will that be considered in the allocation?

MR. PETERSON: Not unless it goes directly into government work.

MR. YATMAN: It is a necessary part of the equipment of the munition factory.

MR. PETERSON: Well, we feel that there is enough free rubber and enough allocated, so that those matters should be taken care of out of that.

J. J. VOORHEES, president, Voorhees Rubber Manufacturing Co., Jersey City, New Jersey: Is it a direct government requirement when a manufacturer supplies belting to a saw mill that is supplying its lumber to the Government, or when a steel mill is supplied with hose, and the steel mill is supplying the Government, and other cases of that kind; is that a direct government supply of rubber which is covered by that 35,000 tons?

THE CHAIRMAN: I will undertake to answer that. The only rubber that can be considered as government rubber is (a) rubber which goes into articles which are sold directly to the Government; or (b) rubber that goes into articles which are destined for use by the Government and which the rubber manufacturer can trace through the government contract number. As an example, a truck manufacturer sells trucks to the Government, he gives his order for tires to a tire manufacturer. The tire manufacturer must get from the truck manufacturer the contract number under which his trucks are being delivered, and also, an affidavit stating the number of tires that went to the Government; then the rubber manufacturer must send in an affidavit that the rubber content of those tires was a certain amount of tonnage, in return for which he gets a license for that amount of rubber in excess of his allocation.

Another example would be a hard rubber manufacturer making submarine battery jars. He would sell the jars to the battery manufacturer, the battery manufacturer would sell his batteries to the submarine boat manufacturer, and the boat manufacturer would sell to the Government. It would go through two hands there, but you would have to get the government's contract number for the boats. Of course, all of the other things come out of the allocation. There must be absolute direct contact between the rubber manufacturer and the contract number from the Government.

Does that make it clear, gentlemen?

MR. VOORHEES: The answer is not very good, but it is clear. (Laughter.)

MR. PEARSON: Does that 100,000 tons include or exclude Pontianak and jelutong?

THE CHAIRMAN: It excludes them. Pontianak is not included, and I might also say that anybody including Pontianak and jelutong in his consumption of rubber last year was in error, but it was an error that might easily have been made, because the questionnaire was not very clear on that point; and if they did include it, of course they will have an opportunity to correct that error.

ALEXANDER M. PAUL, Davidson Rubber Co., Boston, Massachusetts: I want to ask whether your allocation of seven-sixteenths of consumption in 1917 would apply, regardless of the fact of how much rubber a manufacturer might have on hand, or how much he might have coming in, shipments that have been shipped from the East prior to May 8?

MR. PETERSON: Any rubber that leaves abroad prior to May 8 is not included in your allocation. Any rubber that leaves from abroad after May 8, is included in the allocation.

W. T. BAIRD, Rubber Trading Co., New York: Are shipments from England, France and Portugal included in this 25,000 tons?

MR. PETERSON: Yes, sir, any shipments from overseas.

MR. BAIRD: You see, there is a large tonnage coming from those points that have no return cargoes.

MR. PETERSON: They all use tonnage to bring it here.

MR. BAIRD: But it comes empty.

MR. PETERSON: You mean from England?

MR. BAIRD: From London and from the various French ports.

THE CHAIRMAN: The answer to that, Mr. Baird, is that all the empty tonnage that they can use, they get that much more tonnage on the other end.

MR. SOTHERLAND: Are wild rubbers to be based in the way of allocation on the basis of the gross weight as it leaves the point of shipment, or upon the shrinkage that takes place after washing and drying, or, in other words, the average shrinkage that various wild rubbers are subject to?

THE CHAIRMAN: I think that is a very pertinent question. I brought up the same question at our meeting yesterday, and we must ask for a ruling on that. It has not been ruled on, and was not even thought of until yesterday.

H. P. FARRINGTON, Peninsular Trading Co., New York City: In the case of a manufacturer, if he buys part of his rubber in the East direct, and buys the rest from importers here, is he under any obligation, in the distribution of his licenses, and if so, what happens to his contracts that are not covered by license?

CHARLES T. WILSON, Charles T. Wilson Co., Inc., New York City, chairman of the Committee on Rubber and Kindred Products: For the rubber that is allocated, if a man is under contract with the importers for delivery of rubber that leaves during this period, he should apply for his certificates and furnish the importer with those certificates, so that he can import the rubber to fill his contract. It goes against his allocation.

MR. FARRINGTON: What I mean is, if a manufacturer has bought 100,000 pounds of rubber, for example, and he has a license for 40,000 pounds, can he apply that to whatever purchase he wants to, and if so, what happens to the remaining 60,000 pounds that he is under contract for?

MR. WILSON: Well, I imagine that would be a matter of negotiation between the manufacturer and the importer. If a manufacturer wants to evade the responsibility, why, it is up to the importer to try to bring him to time.

MR. FARRINGTON: Are those contracts cancelled?

MR. WILSON: No. *Force majeure*, of course, never cancels any contracts; it simply extends them.

MR. FARRINGTON: That would be applied at a later date, under a future contract?

MR. WILSON: That would probably be the case.

THOMAS FOLLEN, Lion Tire and Rubber Corp., La Fayette, Indiana: We are covered through a broker for our requirements of crude rubber up to August 1. We are likewise covered with a manufacturing concern for our fabric up to August 1. Now, are we entitled, and will we be protected in that tonnage of rubber to take care of our contract by the importer, without any interference on the part of the Government, or confiscating, or is that tonnage subject to confiscation or use by the Government? I would like a ruling on that. We naturally do not want to be top-heavy in fabric and short of rubber, and I would like to give an intelligent reply to our people at home.

MR. PETERSON: There is no restriction at all on the rubber that is shipped from abroad prior to May 8. As to rubber that is shipped after that, you are only entitled to your proportionate allocation. I do not know that I can tell you anything more on the subject.

MR. FOLLEN: In other words then—I want to be clear on this: in other words, the tonnage due us prior to May 8, that is in transit or in storage in New York City, is not subject to any interference on the part of the Government?

MR. PETERSON: It is not. Any rubber that left from abroad prior to May 8 is not under the allocation.

DAVID S. KUBIE, Raw Products Co., New York: I want to know what is to protect the importer on a contract which he has with the manufacturer, say at 68 cents, the Government having set the price at 63? He does not have to give his license to the importer at the high price; he could buy his rubber at 63 cents and give his import license to his new purchase contract. What protection has there been made on that score?

MR. WILSON: Well, in the first place, I think that is rather a slam at the integrity of the average manufacturer. My experience is that they are pretty good people. They observe their contracts. If they have got a contract with you, I think they will take care of it, as far as their allocation will permit, irrespective of the price.

W. HAMMESFAHR, W. Hammesfahr & Co., New York: Let me ask what would happen to market contracts, contracts between importers in New York, for July and August, at prices above 62 and 63 or below the maximum price for those respective months? Has the Government taken into consideration whether they are to be settled at the maximum price or not?

MR. WILSON: Any contract that is in existence on or prior to May 1 is to be carried out at the prices stipulated in it.

Now, as regards the question of transactions between importers, the last seller to a manufacturer should pass it on to the first seller, who is the importer; that is, the manufacturer's certificate, let him use it to bring the rubber in.

MR. HAMMESFAHR: But supposing the last buyer has not sold the rubber to the manufacturers? Suppose it is just a pure market contract, a speculative contract?

MR. WILSON: Well, that is a question I cannot answer at the moment, but it will probably be dealt with.

ERNEST STEIGER, JR., Steiger Trading Co., New York: Does the government demand for an option on rubber on hand, also cover rubber which arrived, let us say six, eight or more months ago, and which, if sold at the new fixed price, would cause the shipper in the foreign country an outright loss?

MR. WILSON: The government option covers any rubber that is on hand or afloat.

W. E. GREENE, Boston Belting Corp., Boston, Massachusetts: What would be the attitude of the Bureau with regard to balata, gutta percha and similar gums?

MR. PETERSON: They are not included in the general restriction, at the present time.

WILLIAM E. BRYAN, Palmer Tire and Rubber Co., St. Joseph, Michigan: To a certain extent the question I had in mind has already been answered, but not to my full satisfaction. I am speaking for an infant industry, an industry that did not start on a manufacturing basis until the latter part of 1917, and whose consumption of rubber last year was not one-twentieth of what it is to-day. Now, will there be any relaxation in this allocation to take care of a situation of that kind?

MR. PETERSON: I will repeat what I have said before, that the present allocation is based entirely on consumption in the year 1917. That is, of course, something of a hardship on a new concern which was in operation only a portion of that time. However, the allocation stands as I have indicated. It is barely possible that some change will be made in the next allocation that is made, and also you are at all times at liberty to present your case for special consideration to the War Trade Board, but I cannot assure you of what action will be taken on that.

N. C. DOSS: Do I understand your statement to be on this point, that a company that has not as yet manufactured any tires and tubes, which proposes to start manufacturing in June, we will say, may not be able to get any rubber at all; or in other words, that is yet to be definitely decided by the Government? Although they have out contracts for rubber with rubber importers to cover their year's work or year's supply, or for six months or seven months beginning June 1, since they have not manufactured any at all yet, that question has not been decided by the Government, as to how much rubber they shall be allowed? Is that right or not?

MR. PETERSON: The Government has to have some basis of allocation, and the only basis that they could have was facts that were in existence. A firm that did not use any rubber last year we could not know anything about what their requirements were this year. Such firms, as I understand it, are still at liberty to go out and buy this free rubber, rubber which left from abroad prior to May 8, and it can also get all of the rubber it needs for government requirements. I cannot tell you any more than that.

THE CHAIRMAN: Mr. Doss, may I ask you whether you replied to the questionnaire that was sent out?

MR. DOSS: I did not receive one, sir.

THE CHAIRMAN: Gentlemen, I might say that when that questionnaire went out, asking for a report of the consumption of each manufacturer during the year 1917, there were fifty-five concerns that did not reply. Of course, as they stand on the records now, they are not entitled to any rubber. They have no allotment, so I would suggest that if there are any gentlemen in this room that have not replied, they make their replies as soon as possible, because no allocation will be made to them until their reply does come in, and we in turn pass the figures on to the War Trade Board.

ALEXANDER M. PAUL: I want to ask if the Board has ever considered, if it has any concern with the use of rubber, the fact that there are a great many manufacturers who have had a very large stock of rubber on hand, and a large stock of rubber in transit, whereas there are other manufacturers who have not bought futures, and find themselves with only a small stock of rubber on hand and very little advance rubber at all? Relatively the last manufacturer will be placed at a very substantial disadvantage.

THE CHAIRMAN: Gentlemen, I think it will be rather illuminating if Mr. Wilson will read the amount of stocks on hand and in transit on the 1st of April last. You understand that the figures sent in by each manufacturer are sent in under a key number, and the report goes to the certified public accountant of The Rubber Association. No member of this committee, or anyone except the public accountant, sees these figures. All we receive is the total, after the public accountant has com-

piled the figures received from each individual importer and manufacturer.

At the request of the War Trade Board our public accountant gave them the figures of each individual manufacturer, but this committee, and no member of this committee knows what any individual manufacturer's consumption was. I want Mr. Wilson to read the total of the stocks, because in a way it will answer Mr. Paul's question and a number of other questions that have been asked. We do not seem to realize the amount of rubber that is available for consumption during the next period—we hope enough to keep everybody supplied until new regulations are made and a new basis is determined.

All of the rubber that is in stock and in transit is free rubber and is not to be allocated. The only rubber allocated is the rubber to be shipped after May 8, and from the figures you will see that we have a large supply of rubber to draw on, to keep the country going.

MR. WILSON: The following tonnage was reported as of March 31:

Number of questionnaires sent to importers		175
Number of replies received		174
Crude rubber in hands of importers:		
In store	11,224 tons	
On the docks and in transit overland within the United States	20,754 tons	
Afloat for American ports	14,832 tons	
Making a total of	46,811 tons	in the hands of the importers.
Manufacturers:		
Number of questionnaires sent	495	
Number of replies received	486	
The following tonnage was reported as of March 31:		
In stock at factory	18,512 tons	
In transit within the United States, invoiced by seller	15,033 tons	
In transit, imported direct by manufacturer	7,215 tons	
	40,762 tons	
Total tonnage for both importers and manufacturers:		
Crude rubber:		
In stores and in stock	29,737 tons	
In transit and afloat	57,835 tons	
Making a total of	87,572 tons	
As of March 31, 1918.		

Now, Mr. Chairman, I will just read the total of the December 31st figures:

Total tonnage for importers and manufacturers:		
In stores and in stock	32,305 tons	
In transit and afloat	35,231 tons	
Or a total of	67,536 tons	

roughly speaking, March 31 shows an increase of 20,000 tons.

MR. PAUL: Mr. Chairman, while I do think those are very imposing in the aggregate, the point I wish to make is that I represent a small manufacturer, who has not bought rubber and has a very limited supply. Those figures on that rubber, if it were equally distributed, would certainly give us ample; but the small manufacturer, who is without these reserves either on hand or in transit, receives his allocation of only 7/16, and so that great supply is not available to him, as I understand it. The question is, is that available to him to-day? Can he go in the market and buy rubber that left the Far East prior to May 8?

MR. WILSON: Yes, sir.

MR. HAMMESFAHR: I am representing several Dutch speculators. They have rubber in store here, costing them over 86 cents per pound. They have cabled me lately that they would like to sell this rubber to the Government at the price this rubber cost them, naturally. Has anything of that kind ever been taken into consideration? I believe a similar question has been taken into consideration in the settlement of the copper trade.

MR. PETERSON: No provision for that has been made at the present time. There are no exceptions to the maximum price. This was fixed, with the exception of existing contracts, and those contracts must have been filed with the War Trade Board.

MR. HAMMESFAHR: Well, can they keep this rubber in store here?

MR. PETERSON: I know of nothing to prevent them keeping it in store, at the present time.

FREDERICK H. JONES, Tyer Rubber Co., Andover, Massachusetts: I would like to ask if the rubber which is used by the rubber sundries' manufacturers for supplying rubber goods to the Red Cross will be considered as a part of the rubber supplied direct to the Government, or if that amount will come out of the allocation of the regular supply of rubber?

MR. PETERSON: That is a matter which has been brought up before, but not as yet decided. It will be given immediate consideration.

WILLARD CANDEE, The Okonite Co., New York: I would like to know if orders received from public service corporations, such as electric light and power companies, furnishing power to the mills working on government contracts, will be treated as government orders?

THE CHAIRMAN: No, you have no direct government contract number on that kind of work, you see.

MR. PAUL: Mr. Chairman, I wish to move a vote of thanks to the gentlemen from Washington who have been so courteous in explaining the situation.

(The motion was unanimously carried.)

MR. PAUL: I move a vote of thanks to the Rubber Committee of The Rubber Association.

(The motion was unanimously carried.)

THE CHAIRMAN: One more word, gentlemen. I would like to say that if any crisis arises at any time in the future, we would like to feel that we can ask you all to come and have another meeting. I think they are very beneficial.

MR. WILLIAM H. STILES: Mr. Chairman, I would like to propose a toast to the United States Government and President Wilson.

The meeting adjourned at 3.40 p. m.

RUBBER EXPORTS TO NORWAY.

THE War Trade Board announces that, in consequence of the conclusion of a general commercial agreement with Norway, exports to that country may be resumed under license, subject to the general policy of conservation and to the general rules and regulations of the War Trade Board. The agreement assures to Norway supplies to cover her estimated needs in so far as these can be supplied without detriment to the war needs of the United States and its associates in the war, and contains long lists enumerating the quantities of rubber and miscellaneous commodities which Norway is entitled to receive.

Norway for its part agrees to permit the unhampered export to the United States and its associates in the war of all Norwegian products not needed for home consumption. It agrees that none of the supplies imported from the United States or its associates, or forwarded by the aid of American bunker coal, shall go directly or indirectly to any of the Central Powers or be used to replace commodities exported to those countries; also, that nothing manufactured, grown or produced by means of machinery, implements, fuel, lubricants or other auxiliaries to production, imported under the agreement, is to be exported to the Central Powers. Guarantees are to be exacted by Norway in the case of any reexport to neutrals against a benefit to Germany and its allies from such reexport.

The rubber schedule as laid down in the agreement is as follows:

SCHEDULE C. RUBBER, ETC.

KIND OF GOODS.	QUANTITIES IN METRIC TONS.
Rubber	500
Rubber covers for automobiles and trucks (includes new importations on cars), *pieces*	17,000
Rubber tubes for same (including new importations on cars)	8,300
Solid rubber tires	1,100
Rubber tires for motorcycles	2,100
Rubber tubes for same	2,100

SCHEDULE E. MISCELLANEOUS.

Shoes, boots and rubbers (mostly rubbers)	200

Exporters should apply to the Bureau of Exports, Washington, District of Columbia, using application Form X, and such supplemental information sheets as are required. Export licenses will be valid only for shipments to be made on vessels flying the Norwegian flag.

"CHIMIE ET INDUSTRIE," THE JOURNAL OF THE SOCIETE DE CHIMIE Industrielle de France, has printed and distributed 30,000 copies of its December number, setting forth a history of the society, its aims and objects, the details of its organization, a classification of its various departments, etc. Those of interest to the rubber industry are Class 30, Caoutchoue, under M. Fric, director of laboratories of Les Établissements Bergougnan, the famous French tire manufacturers; Class 34, plastics, under L. Clement and C. Rivière, chemical engineers; Class 29, resins, under Professor Vezes of the Bordeaux Faculty, and Class 32, colors, lacs and varnishes, under M. Blomme, chemical engineer with Le Franc et Cie.

War News of the Rubber Industry.

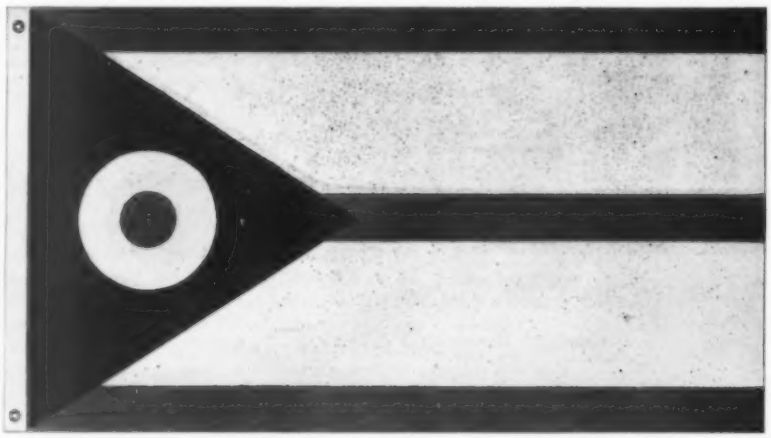
The Third Liberty Loan—Second Red Cross War Fund—Service Notes and Personals—Martyrs to the Cause of Liberty—Letters from the Front.

THE THIRD LIBERTY LOAN.

AS had been anitcipated, the Third Liberty Loan was a great success, the total oversubscription for the entire country being well over a billion dollars. More than 20,000 communities subscribed or oversubscribed their quotas and were awarded honor flags, and it is a notable fact that all of the important rubber manufacturing centers were among them. Reports from all parts of the country indicate that, as in the two former drives, the rubber and allied industries participated in the campaign with enthusiasm and in bond purchases responded nobly.

THE LIBERTY LOAN IN GREATER NEW YORK.

A quota of $5,000,000 had been set for the Special Liberty Loan Committee for the Rubber Industry of Greater New York, but by good team work total sales amounting to $5,740,800 were made, and the honor flag thus won will be presented to The Rubber Association of America.



RUBBER TRADE COMMITTEE HONOR FLAG.

The list of subscriptions made through or included in the reports of this committee follows:

Acker, Henry.
Acme Rubber Stamp Co.
Acme Trucking Co.
Acinoff, Wm.
Advance Rubber Co., employes.
Ajax Rubber Co., Inc.
  Employes.
Akron Rubber Tire Co.
Akron Tire Co.
Albano, Robert.
Alden's Successors, Limited.
Alliance Tire Co.
Amazon Rubber Co.
American Auto Tire & Supply Co.
American Balloon Co.
American Coat Co.
American-European Raincoat Co.
American Hard Rubber Co.
American Raincoat Co.
American Red Cross.
American Rubber Corp.
Amster, R.
American Syringe Manufacturing Co.
Ancon Rubber Co.
Anglo Tire Co.
Ansonia Co., O. & C.
Archer Rubber Co.
Arnold, Nathan.
Arrow Tire Co.
Asbestos Textile Co.
Aseptic Products Co.
Ash Sons, Limited, C.
Ash Sons, Limited, C., employes.
Atlantic Rubber Manufacturing Co.
Atlas Tire Co.
Auerbach Tire Works.
Austin, Robert & Co.
Automobile Raincoat Co.
Automobile Tire Co.
Aziff Bros.

Badenhop Co., Robert.
Baldrini, H. R.
Ballard Rubber Co., Stephen.
Barnes, George.
Bassett, T. W.
Batavia Rubber Co.
Batavia Rubber Co., employes.
Beacon Falls Rubber Shoe Co.
Bedford Rubber Tire Co.
Beers, A. B.
Behrend & Rothschild.
Bell, Bellmont H.
Belmont Packing & Rubber Co.
Berger & Zaager.
Bergen, Bernard.
Bergougnan Tire Corp.
Bers, Aaron.
Bers & Co., E.
Bertuch, Paul, Inc.
Berzon, Leo S.
Birnbaum, Mary.
Bishop Gutta Percha Co.
Bleke, Martin.
Bleecker, Rutger & Co.
Blitz, Ludwig.
Bloomingdale Rubber Co.
Blumenthal, Sam W.
Boger, W. A.
Boissevain & Co., Eugene.
Boston Belting Co.
Bourne, Mildred H.
Braender Rubber & Tire Co.
Breck, Edward A.
Broadway Supply Co.
Broadway Tire Repair Co.
Bromberg, A. J.
Brooklyn Auto Tire Co.
Brooklyn Shield & Rubber Co., employes.
Bronx Tire Works.
Brown, B.
Bruyn, W. E.
Bruyn, Evelyn M.
Buckley Rubber Co., J. W.
Buffalo Weaving & Belting Co.
Burnett, Wm. H.
Burr Co., A. E.
Busch, Mrs. Emma.
Busch, Jacob.
Busener, Vincent A.
Byles, Estate of, L. M.

Calvet & Co., P.
Canavan & Co., John.
Capens Sons, Inc., A. M.
Capitol Raincoat Co.
Carleton & Co., E. E.
Carlyn Rubber Co.
Carter Bell Manufacturing Co.
Chatfield Co.
Chernakin M.
Chipmar, R. L.
Clarke, Jerome I.
Cohen & Karsch.
Coll, C. L.
Combination Rubber Co., employes.
Connors, Thomas J.
Continental Rubber Co. of New York.
Continental Rubber Works.
Converse Rubber Shoe Co.
Core & Herbert.
Crandall Packing Co.
Croft, Ralph.
Crown Raincoat Co.
Curry, Emerson G.

Dammann, Milton.
Danubil Co., Inc.
Davol Rubber Co.
Dayton DeBois Co.
DeGannaco, Paul.
DelChase Tire Co.
Delion Sales Co., Inc.
Dennis, J. A.
Deschamps, P.
DeSilva Rubber Co.
Deutsch, Beatrice E.
Deutsch, Adolph.
Dick, R. & J.
Distribution Tire & Supply Co.
Doherty, Anna G.
Doherty, Eugene, Rubber Works.
Dolkart, H. M.
Dreadnaught Tire & Rubber Co.
Dreyfus Co., L. A.
Dreyfus, S.
Driscoll, John F.
Drubin Tire Co., employes
Duane Rubber Co.
Duffinn, F. Lowes.
Dunbar-Daggett Co.
Dunbar, Inc., E. J. & Co.

Earle Bros.
East Asiatic Co., New York Agency.
Eastern Parkway Tire Repair Co.
Eastmond & Co.
Eclipse Vulcanizing Works
Electric Hose & Rubber Co.
Ellis, B. S.
Empire Rubber & Tire Co.
English Kantwet Raincoat Co.
Entin, Solomon.
Etler, I.
Eureka Fire Hose Manufacturing Co.
Everson & Reed Co.

Fabian & Co., R.
Falls Tire Co.
Farrell Auto Supply Co.
Faure, A.
Faultless Rubber Co.
Federal Rubber Co.
Fellson Tire Co.
Firestone Tire & Rubber Co.
  Employes.
Fisk Rubber Co., The.
Fligel, Benjamin.
Francis, Arnold W.
Gandy Belting Co.
Garcin, E. H.
Garlock Packing Co.
Gardner-Moffett Co., employes.
Gecello, Arthur A. W.
General Export & Commission Co.
General Insulate Co., employes.
Gillette Rubber Co.
Ginsburg & Berkowitz.
Globe Raincoat Co.
Globe Tire Co.
Golead Manufacturing Co., employes.
Goodall Rubber Co., employes.
Goodrich, B. F. Co., The.
  Employes.
  Through employes.
Goodyear Raincoat Co.
  Goodyear Rubber Co.
  Goodyear Rubber Insulated Co.
  Goodyear Tire & Rubber Co.
Goodyear Waterproof Co.
Gottwich Scheffer & Co.
Gove, F. G.
Gove & French.
Grace, W. R. & Co.
Graham & Hinckley Co.
Gravenhorst & Co.
Greidanus, T.
Griffen Co., Jas. S., Inc.
Gryphon Rubber & Tire Corp.
Guaranty Tire Vulcanizing Co.
Gutta Percha & Rubber Manufacturing Co.

Hadden & Co.
Hagemeyer & Brunn.
Halsey Vulcanizing Co.
Hamburger & Co., Louis.
Hamilton, A. D.
Hammesfahr & Co., W.
  Employes.
Hanse, Frederick R.
Harsnett, Walter.
Hartford Tire Co., Inc.
Haske, Henry.
Hassloop, Fred.
Haufmann, Marg.
Henderson & Co., F. R.
Heniz, David.
Henke, G. R.
Henschel Tire & Rubber Co.
Hess, Simon.
Hodgman, Geo. B.
Hodgman Rubber Co.
Home Raincoat Co.
Home Rubber Co.
Honig, Lester C.
Hood Tire Co.
Hoopgarner, E. O.
Horner, J. M.
Howe Rubber Co.
Hudson Mechanical Rubber Co.
Hudson Rubber Co.

Ideal Coat Manufacturing Co.
India Rubber World, H. C. Pearson.
  Employes.
  (Boston Office, additional).
Indian Head Tire Co.
Intercontinental Rubber Co.

Jaffess, Isaac.
Jandot, A.
Jaub, Anthony.
Johnson & Co., J. T.
Jones Packing Co.
Jones, S. H.
Joosten & Janssen.
Joseph & Son, W. H.
Jungkind & Volger.

Kalina, Anna.
Kaplan, S. B.
Kelly-Springfield Tire Co.
Keystone Tire & Rubber Co.
King Tire Co.
King Tire Co. of Brooklyn.
Klein, Max.
Kleinert, I. B.
Knight, Ashton.
Knoke, E. J.
Kobbe, Edw.
Kobbe, Elise.
Koebig, P. W., employes.
Koehler, John E. T.
Koffman, J.
Kramer & Co., F. L.
Kreiger & Co., Edw.
Kush, Gustave.

Larkowitz, Kurzma.
Larson, Helman.

Lee Tire & Rubber Co.
Employes.
Lenox Tire & Repair Co.
Levinson, Harry M.
Lewis, May F.
Liben & Co., B.
Liben & Co., M.
Liddell, Wm.
Lincoln Tire Co.
Lindholm, Leah.
Littlejohn & Co., L.
Employes.
Livezey, Henry.
Loewenthal, Max.
Long Island Rubber Co.
Low, C. H.
Low, R. A.
Lowenthal, R. M.

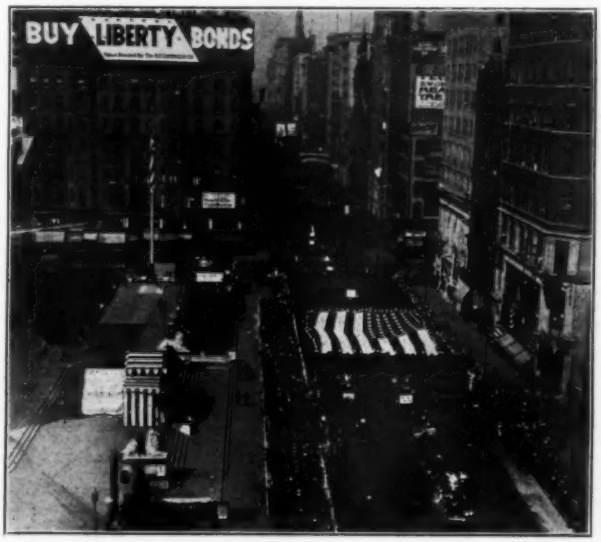
Maguire Rubber Co.
Malbin & Son, S.
Maltzman & Eliansky.
Manhattan Rubber Manufacturing Co.
Marks, A. A.
Marks, Arthur H.
Marquardt & Co., H.
Martin, James.
Mathes Co., G.
Mattern & Sons, Inc., Jacob.
Maurer Co., Inc., Edw.
Maxwell, Harry.
Maynard Co., A. J.
Maywald, Frederick J.
McAllister, Frank.
McGrath, Arthur H.
McGraw Tire & Rubber Co., Brooklyn, employes.
McKenna, M. J.
McMichael, Lucien P.
McNamara & Co., A. B.
McPhilips & Co., C. F.
Meagher, M. M.
Meisel, Gladys P.
Mercer Rubber Co.
Merchants Raincoat Co.
Mercury Tire Co.
Merz, J. R.
Metal Hose & Tubing Co.
Metal Hose & Tubing Co.
Employes.
Metropolitan Specialty Co.
Mexican Crude Rubber Co.
Meyer & Brown.
Michelson & Sternberg.
Middleton & Co.
Miller, E. J. M.
Miller, Otto.
Miller Rubber Co.
Mitsui & Co., Limited.
Moffitt, Samuel.
Moss & Co., Theo.
Employes, New York.
Employes, Brooklyn.
Mullen, Wm. G.
Mutual Tire & Rubber Co.

National Rubber Co., employes.
National Rubber Manufacturing Co.
Neptune Raincoat Co. (M. Gross).
Neptune Raincoat Co. (Max S. Hillson).
Newman Tire & Rubber Co.
Employes.
New York Belting & Packing Co.
New York Coat House.
New York Hard Rubber Turning Co.
New York Mackintosh Clothing Co.
New York Rubber Co.
Employes.
New York Rubber Coat Co.
New York Rubber Disc Co.
New Jersey Raincoat Co.
Nezold, May.
Nixon, Florence K.
Nordheim & Co.

Obalski & Sweeney.
Oden, J. M.
Oppenheimer & Co.
Oriental Rubber & Supply Co.
Employes.
O'Rourke, Thos.
Oshatz, Meyer.
O'Sullivan Rubber Co.
Overman Cushing Tire Co.

Packard, Jos. S.
Palace Supply Co.
Para Tire Co. of New York.
Parker, Russell.
Parker, Stearns & Co.
Employes.
Pell & Dumont.
Peninsula Trading Agency.
Pennsylvania Rubber Co., employes.
Penttinen, Anna.
Phillips Rubber Co.
Phoenix Auto & Raincoat Co.
Phyfre & Co., Jas.
Pines Rubber Co.
Pintouro, Vincello.
Plottel Raincoat Co.
Plumb, Louis J.
Pneumatic Manufacturing Co.
Poel, Frank.
Poel & Kelly.
Polack Tyre & Rubber Co.
Portage Rubber Co. of New York.
Posner & Block.
Pottberg, Ebbling & Co.
Pruden Hardware Co.
Public Service Tire Co. of New York.
Puritan Raincoat Co.

Racine Rubber Tire Co.
Radical Rubber Co.
Ratner, Leo.
Raw Products Co.
Raymond, H. E.
Raymond, Mary P.
Reliable Coat Co.
Rencie, Peter.
Republic Rubber Co.
Rex Rubber & Novelty Co., employes.



THE GOODRICH FLAG AT THE HEAD OF THE NEW YORK LIBERTY LOAN PARADE.

Rhyne, Georgia na.
Rindskopf & Co., A. P.
Ris, Lester I.
Ritter, Lester G.
Robins Conveyor Belt Co.
Robinson Raincoat Co.
Robinson & Co.
Robinson & Co., employes.
Rockhill & Vietor.
Rodgers, Katherine.
Rolle Rubber Co.
Rosco Tire & Rubber Co.
Rosenblum, Max.
Roos, F. B.
Rothschild, M.
Employes.
Rothstein, Samuel.
Royal Auto & Tire Co., employes.
Rubber Association of America, Inc., The.
Rubber Importers & Dealers Co.
Rubber Trade Association of New York.
Rubber Trading Co.
Rudd, John, Jr.
Russell Manufacturing Co.
Russell & Co., W. R.
Ryckman, Willis G.

Salator, Jacob.
Sanborn Manufacturing Co.
Saniton Specialty Co.
Schachtel, Victor R.
Schmid, Inc., Julius, employes.
Schoonmaker Co., E., employes.
Schoonmaker, Mrs. Hattie.
Schott Bros.
Schreiner, Kate M.
Schroeder, Karl.
Schroeder & O'Hara.
Schwartz, Arthur.
Schweitzer, Peter J.
Scickitono, Leonard.
Seda, Jose Falie.
Service Tire & Rubber Co., employe.
Shakow, Jos. D.
Shapero & Co.
Shertmur, John Henry.
Sieven Bros.
Simmons Co., The.
Simon, David.
Skrivanek, Josephine.
Smillie & Co., C. F.
Smith, John Cotton.
Smith, Gregory.
Solomon, Sidney M.
Soltze, O.
Standard Emarex Co.
Standard Raincoat Co.
Standard Rubber Co.
Standard Tire & Tube Works.
Star Rubber Co.
Star Rubber Tire Co.
Stark, John G.
Stark, Lucia R.
Stern & Co., Fred.
Stiles, Wm. H.
Sugerman, D.
Sussfield & Co., A.
Swinehart Tire & Rubber Co.

Taintor Manufacturing Co., H. F.
Tallman, A. V. W.
Tappenbeck, W.
Employes.
Tash & Bro., Samuel.
Tire Specialty Co.
Top Notch Co.
Employes.
Trautman's Auto Tires.
Trautwein's Tire & Repair Co.
Tropical Tire & Rubber Co.
Tropsa, Frank.
Tyer Rubber Co.

U-Glu Supply Co.
Underhill & Co., L. C.
United Anchor Tire Co.
United & Globe Rubber Manufacturing Cos.
United States Raincoat Co.
United States Rubber Co.
United States Rubber Co. Mechanical Division.
Employe.
United States Rubber Reclaiming Co.
United Vulcanizing Co., New York City.
United Vulcanizing Co., Brooklyn.
Universal Rubber Co.

Vant Woud Rubber Co.
Vaulry Tire Co.
Ventriglio, Raffaela.
Vernon Metals Produce Co.
Victor Balata & Textile Belting Co.
Vulcanized Rubber Co.

Wallant, Murray F.
Walton, Henry A.
Washington Heights Auto Tire Works.
Washington Waterproof Clothing Co.
Wearbest Raincoat Co.
Wedell, Clarence A.
Weill, Bertram.
West End Tire Repair Co.
Weston, W.
Whittemore Sims Co., employes.
Wholesale Auto Tire Co.
Wilson Co., Inc., C. T.
Employes.
Winter Son & Co.
Wishart, Edith L.
Wohlberg, Richard.
Wollman, Wm. A.
Wood, Chas. E.
Work, Bertram G.
Work, Marion S.
Wright, Peter.

Yorkshire Manufacturing Co.

Zorn, Albert T.

PARTIAL PAYMENT COUPON BOOK SUBSCRIPTIONS.

A feature of the Greater New York campaign was the adoption of partial payment coupon books in accordance with a plan worked out by a group of all the commercial banks and trust companies of Greater New York, known as the Liberty Loan Association, to relieve employers of the responsibility of carrying bonds purchased by their employes on an instalment basis.

The plan provided for a coupon booklet, doing away with the bookkeeping required under other partial payment systems, and called for an initial payment of 4 per cent under the weekly plan and of 10 per cent under the monthly plan, at which time the purchaser signs his name and address on the first perforated page of the book, thereby completing the contract of purchase. This page is then torn out by the seller, the stub serving as the purchaser's receipt. Subsequent payments are made at the rate of 2 per cent under the weekly plan and 10 per cent under the monthly plan.

After full payment and upon turning in his coupon book with all stubs endorsed by an authorized agent of the association, a bond with one or more coupons detached, but with an allowance of interest on all payments made, will be delivered to the purchaser.

All purchasers who are in arrears two weeks will, after one week's notice, be termed delinquent, and their bonds may be sold in the open market and the proceeds refunded to the purchaser, less costs, at the expiration of the payment period (50 weeks or 10 months, as the case may be).

The subscriptions of the rubber industry under this plan, chiefly among employes, were 298, aggregating $36,200.

THE LIBERTY LOAN IN MASSACHUSETTS.

In Massachusetts seventy rubber firms subscribed $1,348,950 and 17,254 employes subscribed $1,134,350, making a total of $2,480,300. The 100 per cent firms were the Acushnet Process Co., A. S. Brock Rubber Co., Globe Rubber Works, Alfred Hale Rubber Co., Hanover Rubber Co., and the Lawrence Rubber Co.

The Fisk Rubber Co. made a remarkable record of 98¼ per cent, 4,336 out of 4,413 employes subscribing $304,100. The Carton Belting Co. and the Boston Insulated Wire & Cable Co. also made splendid records of 92 and 88 per cent, respectively.

A detailed list follows:

THIRD LIBERTY LOAN SUBSCRIPTIONS OF THE RUBBER INDUSTRY OF MASSACHUSETTS

Acushnet Process Co.	$4,600
Employes	6,700
American Rubber Co., employes	28,000
American Steel & Wire Co., employes	14,150
Appleton, F. H., & Son	15,000
Apsley Rubber Co.	10,000
Employes	10,550
Archer Rubber Co.	11,000
Employes	4,000
Archer Strauss Rubber Co.	20,000
Atlantic Rubber Co., employes	900
Boston Belting Co., employes	5,800
Boston Blacking Co.	10,000
Boston Insulated Wire & Cable Co.	25,000
Employes	6,250
Boston Rubber Shoe Co.	20,000
Employes	110,650
Boston Woven Hose & Rubber Co.	81,800
Employes	43,200
Brock, A. S., Rubber Co., employes	800
Carr, F. S., Co.	5,000
Employes	12,550
Carton Belting Co., employes	3,500
Clapp, E. H., Rubber Co.	17,000
Employes	4,750
Clifton Manufacturing Co.	2,800
Employes	3,200
Colton, Geo. S., E. W., Co.	5,900
Employes	7,600
Conant, Houghton	5,000
Employes	5,700
Converse Rubber Shoe Co.	50,000
Employes	63,300
Davidson Rubber Co.	2,500
Employes	500
Easthampton Rubber Thread Co.	35,000
Employes	5,300
Elastic Tip Co., employes	1,300
Everlastik, Inc.	50,000
Feinberg, David	6,000
Employes	400
Ferdinand, L. W.	1,000
Employes	200
Fisk Rubber Co., The	445,900
Employes	304,100
Franklin Rubber Co.	1,500
Employes	600
Garlock Packing Co., employes	1,350
Globe Rubber Works	500
Employes	500
Goodrich Co., The B. F. (Worcester), employes	450
Gutta Percha & Rubber Manufacturing Co.	5,000
Employes	850
Hale, Alfred, Rubber Co.	1,000
Employes	650
Hanover Rubber Co., employes	2,150
Hatch, H. S.	5,000
Hauthaway & Sons, employes	5,700
Hazen, Brown	5,000
Employes	1,000
Hood Rubber Co.	143,000
Employes	357,000
Jenkins Rubber Co., employes	1,000
Kenlit Rubber Co.	50
Employes	350
Killion Rubber Co.	3,200
Employes	150
Lapworth, Wm., & Sons	6,400
Lawrence Rubber Co., employes	350
Lowell Insulated Wire	10,500
Lynn Rubber Manufacturing Co., employes	400
Mayflower Rubber Works	10,000
Meade Rubber Co.	2,000
Employes	1,350
Monatiquot Rubber Works	10,000
Monnier, Ernest	1,200
Mutty, L. J.	150,000
Employes	19,900
Mystic Rubber Co., employes	3,000
Needham Tire & Rubber Co., employes	2,550
Panther Rubber Co.	1,100
Employes	3,900
Plymouth Rubber Co.	6,500
Employes	18,500
Reading Rubber Manufacturing Co.	5,000
Employes	3,650
Republic Rubber Co., employes	1,350
Revere Rubber Co., employes	8,000
Rider, P. R.	2,050
Employes	400
Ryan Ideal Stain Blacking Co.	2,000
Employes	500
Sanford Mills	2,500
Employes	1,050
Simplex Wire & Cable Co.	25,000
Employes	22,200
Springfield Rubber Co.	10,000
Employes	1,400
Standard Tire & Rubber Co., employes	2,500
Standard Woven Fabrics Co.	5,450
Stowe & Woodward	1,500
Employes	2,000
Taunton Rubber Co., employes	250
Tyer Rubber Co., employes	26,250
United States Rubber Co.	100,000
Wood Elastic Web Co., I. W.	10,000
Employes	2,700

LIBERTY LOAN NOTES.

That the Pennsylvania Rubber Co., Jeannette, Pennsylvania, was very largely responsible for the splendid manner in which Jeannette went "over the top," cannot be doubted. At the beginning of the drive this company offered to duplicate every bond which was sold in the office and factory, and the total subscriptions amounted to $85,000. It also offered to double the subscriptions of the town if $200,000 was subscribed independent of the company. As a result the total subscriptions amounted to $585,500, against a quota of $276,950.

As in past Liberty Loan drives, patriotic window displays were unquestionably beneficial in stimulating sales. Most of the rubber companies of the country gave liberally of their display space of every sort, and many were the ingenious, original, beautiful and highly effective schemes worked out.

LIBERTY LOAN DISPLAY OF THE NEW YORK RUBBER CO.

In the office of the New York Rubber Co., 84 Reade street, New York City, the central feature of a group including the American flag, the service flag of the office and several bond posters, consisted of a neatly executed model of a British tank made of pieces of rubber by one of the office porters, as shown by the accompanying illustration.

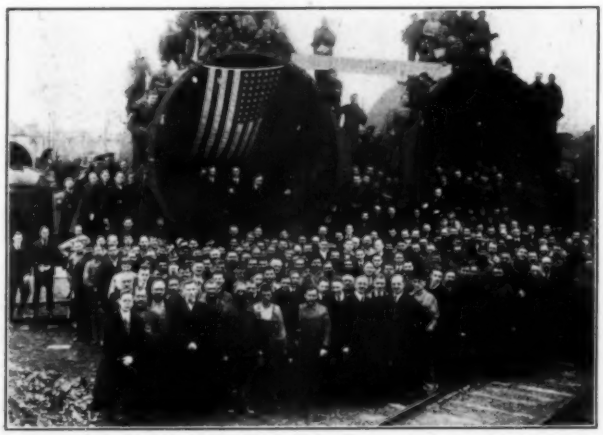
The tank is manned by a crew of American-made toys.

The splendid record of The Fisk Rubber Co., Chicopee Falls, Massachusetts, was the result of organized effort. A five-day drive with a quota of $250,000 as the objective was planned. The plant was divided into ten divisions with a commander at the head of each, assisted by captains and lieutenants. Each division was assigned a quota based on the number of employes.

The campaign started with a dinner in the administration building dining room, which was attended by the commanders, captains, lieutenants and invited guests. Addresses, including one in Polish, were made by officials of the company and several local men. Entertainment was furnished by the Fisk orchestra and the Shubert male quartette. After the dinner the commanders of each division got their officers together and a canvass of the night shift started. So willing were the Fiskers to subscribe that 42 hours after the campaign started the quota of $250,000 had been reached. There was no let up, however,

and the drive continued, ending with a total subscription of $304,100, an average per capita of $68.55. A large bulletin board 24 by 8 feet, showing daily results of each division, was an interesting feature of the movement.

Final reports of the Liberty Loan campaign among employes of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, and its subsidiaries show that the total subscription was $2,601,000. Of this, $2,217,000 was taken by employes of the parent company. Three subsidiaries—the R. D. Nuttall Co., the Krantz Manufacturing Co., and the Pittsburgh Meter Co.—showed 100 per cent of employes subscribing. The electric company employes, to the number of 32,048 subscribed $69.18 per capita, or 5.2 per cent of the pay-roll.



BUFFALO FOUNDRY & MACHINE CO. THIRD LIBERTY LOAN MEETING.

Practically the entire output of the Buffalo Foundry & Machine Co., Buffalo, New York, is now for government requirements, and patriotism runs high. The Third Liberty Loan drive was launched at an enthusiastic meeting where the operatives were addressed in English and Polish on the necessity of supporting the boys on the firing line. The accompanying illustration shows how the speakers took as their platform one of the great castings which are being turned out in large numbers for the enormous nitrate plants being erected by the Government. Every man in the employ of the company subscribed for one bond or more, the results being as follows: Office and shop, $30,350; heads of departments, $13,200; officers and directors, $52,000; company, $54,500—total, $150,050.

SECOND RED CROSS WAR FUND.

COMMITTEE ON CORPORATIONS.

The committee appointed to solicit subscriptions from corporations or companies for the Second Red Cross War Fund in New York City comprised the following: Bertram G. Work, chairman, The B. F. Goodrich Co.; W. E. Bruyn, L. Littlejohn & Co.; W. J. Kelly, Poel & Kelly; C. H. Low, United States Rubber Reclaiming Co.; Henry H. Spadone, Gutta Percha & Rubber Manufacturing Co.; Henry C. Pearson, THE INDIA RUBBER WORLD; Homer E. Sawyer, United States Rubber Co.; H. E. Raymond, The B. F. Goodrich Rubber Co.; M. L. Heminway, secretary.

The following are assisting the committee: Mary B. Roberts, W. C. Hummel, C. T. Kennedy, John Cotton Smith and Nelson B. Smith, United States Rubber Co.; Kathryn Hannigan, W. M. Hills, Jos. H. Groth, G. E. Anderson, John Davern, W. G. Treat, W. H. Hart, and Ray Rhyne, The B. F. Goodrich Co.; C. B. Farr, Ajax Rubber Co., Inc.; J. N. Nugent, Republic Rubber Co.; E. F. Pfaff, THE INDIA RUBBER WORLD.

INDUSTRIAL COMMITTEE.

The committee in charge of the industrial campaign of the Second Red Cross drive in the rubber industry in New York City was composed of J. Newton Gunn, of the United States Rubber Co., chairman; Frank Stewart, of the United States Rubber Co., mechanical goods division, Reade street, executive secretary, and Gordon Smith, of the United States Rubber Co., assistant executive secretary. These men had the supervision of twenty-seven divisional chairmen, each of whom was in charge of soliciting subscriptions from seven to ten out of a total of 250 different companies, and the appointing of internal Red Cross chairmen or sub-chairmen in the individual companies, these latter directing the solicitations of subscriptions from employes.

The twenty-seven divisional chairmen were as follows: C. B. Farr, W. L. Baumes, and A. Loos, Ajax Rubber Co., Inc.; E. G. Eilsmann, Electric Hose and Rubber Co.; A. Joeckel, Eureka Fire Hose Manufacturing Co.; Charles W. Seiler, The Fisk Rubber Co.; R. B. Skelton, Firestone Tire & Rubber Co.; W. H. Schilling and Miss G. A. Goldberg, Federal Rubber Co.; W. W. Goodfellow and John Cotton Smith, Goodyear India Rubber Selling Co.; R. B. Pomeroy and A. B. Bronte, New York Rubber Co.; William A. Page and J. H. Lane, New York Belting & Packing Co.; A. C. Martin, Quaker City Rubber Co.; H. H. McGee, J. H. Foley, and J. G. Getty, United States Rubber Co., Duane street; L. S. Norbury, J. R. Hall, J. H. Skelly, S. D. Valentine, and F. Horsburgh, United States Tire Co., and J. C. Veeder, C. C. Close, and W. S. Williamson, United States Rubber Co., mechanical goods division.

SERVICE NOTES AND PERSONALS.

S. A. Morrill, southern representative of the Davol Rubber Co., Providence, Rhode Island, has been called to the colors and is now in training at Camp Devens, Ayer, Massachusetts.

W. A. Stuart, a nephew of the Editor of THE INDIA RUBBER WORLD, is a non-commissioned officer on a United States U-boat destroyer.

W. A. STUART.

First Lieutenant E. C. Coleman, formerly of the Goodyear's Metallic Rubber Shoe Co., Naugatuck, Connecticut, is now in the Quartermaster's Department at Boston, Massachusetts.

Fred E. Miller, former paymaster of Goodyear Cotton Mills, Inc., Killingly, Connecticut, is a corporal in the Quartermaster Corps, now in France.

William T. Aldrich, of Boston, Massachusetts, who is a brother of Edward B. Aldrich, of the Continental Rubber Co., of New York, 120 Broadway, New York City, will soon leave for France to engage in reconstruction war work there. He has leased for the season his attractive summer residence at Peach's Point in Old Marblehead to Henry F. du Pont, of the well-known du Pont family of Wilmington, Delaware.

Flight Lieutenant R. E. Caverhill Cameron, Royal Air Service, is reported injured and in a French hospital. Prior to going overseas he was a flying instructor at one of the Canadian camps in Texas. He is a brother-in-law of J. M. S. Carroll, sales manager of The Consolidated Rubber Co., Limited, Montreal, Quebec, Canada.

M. C. Turpin, formerly assistant manager, department of publicity, Westinghouse Electric & Manufacturing Co., Pittsburgh, Pennsylvania, has resigned to enter Federal service as assistant to the manager of the Technical Publicity Bureau, Ordnance Department, Washington, District of Columbia. Mr. Turpin's work will be on the dissemination of information from the War Department to manufacturers through the medium of the trade press. He has been with the Westinghouse department of publicity since 1909.

Charles W. Everson, vice-president of the Everson & Reed Co., 88 Chambers street, New York City, the second oldest concern in the country manufacturing rubber stamps and dies, enlisted in February, 1918, and was given a commission as a first lieutenant early in March. He is identified with the Approvals Section of the Equipment Division of the Signal Corps, and was stationed for some time with The Dayton Engineering Laboratories Co., Dayton, Ohio, which makes, among other products, the Liberty motor used in airplanes and submarines. Lieutenant Everson has recently been orderd to the Central West on special duty, with Chicago, Illinois, as headquarters.

LIEUTENANT.
CHARLES W. EVERSON,

John M. Eckert, assistant engineer in the gas and oils department of Underwriters' Laboratories, 207 East Ohio street, Chicago, Illinois, has entered the Ordnance Department of the Army as supervisor of tests at steel plants in the vicinity of Chicago, and also in Ohio, Indiana, Wisconsin, and adjoining states. His work will include physical tests, chemical analysis, heat treatment at plants, and the instruction of inspectors for his territory.

Sergeant Alfred M. Foster, Field Hospital No. 26, son of A. S. Foster, well known in connection with the Naugatuck footwear factories, sailed about May 25 for France.

Roswell C. Colt, director, Dominion Rubber System, Montreal, Canada, and a son of Colonel Samuel P. Colt, president of the United States Rubber Co., New York City, after several efforts to join the Canadian Aviation Corps, has volunteered for service in the United States Navy and has been accepted with the rating of coxswain. After preliminary training at Newport, Rhode Island, he will qualify for the rank of ensign, with the object of transferring to the Naval Flying Corps.

ROSWELL C. COLT.

D. C. MacDonald, formerly manager of the Akron, Ohio, branch of the Mason Tire & Rubber Co., has enlisted and is with Company H, 315th Infantry, Camp Meade, Maryland. He had been with the Mason company since it was first organized, and was before that with the Firestone Tire & Rubber Co., at Buffalo, New York.

MARTYRS TO THE CAUSE OF LIBERTY.

WORD has been received by the Goodyear Tire & Rubber Co., Akron, Ohio, that a former employe, Charles H. Klahre, went to his death with 15 other brave American lads when the United States destroyer *Manley* was rammed in foreign waters. Exhibiting a true American spirit, he enlisted a few days after war was declared. Only a few hours before news of his death was received, a letter from him had reached his mother.

AMERICA'S FOREMOST AVIATOR.

Mention was made in the March 1, 1918, issue of THE INDIA RUBBER WORLD of the remarkable work of Major Raoul Gervais Lufbery, America's foremost aviator in point of victories in airplane warfare, who has a record of participating in more than fifty battles in the air, and is officially credited with bringing down at least eighteen German planes. News of his death came to this country early last month. He died in action, having done great and noble service for France, his birthplace, and for America, his country. For, though born in Chauny, France, his father was an American, a member of the firm of Lufbery & Chardonnier, Chauny, whose factory, making rubber substitutes and sulphuret of antimony, was in active operation until destroyed by the Germans in the present war.

(C) Press Illustrating Service, Inc., N. Y.
MAJOR R. G. LUFBERY.

Raoul Lufbery was to some extent a soldier of fortune. His early adventures took him to Algiers, Egypt, Indo-China, Constantinople, Roumania and Switzerland. He taught gymnastics for a time in Hamburg, Germany.

In 1906 he came to America and worked in a silver factory at Wallingford, Connecticut. From Wallingford he went to New Orleans, then to Mexico and San Francisco. He enlisted in the United States Army and was sent to Manila. He was in Hongkong in 1911 and had a position with the Imperial Customs Service of China. He learned to fly in Saigon, Cochin China, his teacher, Pourpe, being one of the first fliers to be killed in the present war.

Lufbery joined the French aviation service in 1916, and by November of that year he had brought down six machines. When the American air service began activity he was commissioned a major in the American Army, being inducted into that office last January.

The body of the dead aviator was interred in France near the scene of his death, with full military honors, while his fellow-aviators showered flowers on his grave from above. He is survived by his father, two brothers, both at the front in France, a half-brother and four half-sisters, three of whom are nurses serving in the cause for which Major Lufbery so valiantly strove.

George F. Lufbery, Jr., Elizabeth, New Jersey, is a first cousin to the deceased aviator.

Frank Goldcamp, a former employe of the Goodyear Tire & Rubber Co., Akron, Ohio, was killed in France during a fight on the West front in April, according to word received in Akron, May 1. Goldcamp enlisted in Akron, March 30, 1917.

Sergeant Gordon Stafford is reported to have died from wounds in France on April 9. He was 27 years of age and, previous to his enlistment in the 50th Canadian Battalion, had represented the Canadian Consolidated Rubber Co., Limited, at Calgary, Alberta, Canada, for a number of years.

LETTERS FROM THE FRONT

FROM A PLUCKY NEW ENGLANDER.

IN A FRENCH HOSPITAL.

DEAR ———:

I think hospitals are very stupid things to know all about, don't you? I'm sure I didn't come over here with any idea of increasing my knowledge in that particular department. But it seems my destined lot to become an expert in French hospitals. What a dreadful waste of time, among other things!

But I must go back to the beginning. It was, I think, the afternoon of February 24. Four of us were lying on the beds or perched on duffle bags (the scene is our cantonment) playing a peaceful game of bridge. A tinkle of the telephone bell downstairs in the bureau, and the sergant yelled up for four extra cars wanted immediately at post B.

We leaped down the ladder, made a run for the cars, much cranking, and we were off in a flurry of mud. There seemed no particular excitement at post B; rumors of a great number of gas patients coming in at one of the front posts, but no visible *blessés*. Two cars, nevertheless, departed for post A, and I sat around awaiting developments. All was quiet for an hour. Then a car came back from A, and I went up to replace it. There were already three cars at the post when I arrived; it was a clear day and one could see four German observation balloons away off on the horizon. These items aren't irrelevant.

One car left with a load. The next man's motor was giving him trouble, and we tinkered with it for fifteen or twenty minutes, changing coils and spark plugs without much success. Every now and then a shell whistled overhead, but they were landing away over the hill and we didn't pay much attention. A little crowd of gas patients came down from the *abri*, a couple of *brancardiers* lugging their equipment. We helped them to a place to duck. The next few seconds is nothing but noise and smell—crashes of the explosions, a violent metallic ringing in the ears, and the acrid stench of sulphur—as three shells broke, one squarely in the middle of the road and about ten feet off, the other two a bit farther away in the fields. Then all was quiet and I sat up to collect my wits.

One of the Frenchmen stood up and walked over to me. *"Il est tué,"* he said, pointing to the other *brancardier*. *"Moi, je crois que je suis blessé."* Dead?—that, of course, wasn't reasonable. I was unnaturally calm and collected, as though everything was quite as usual. It all seemed entirely ordinary and commonplace. I walked over to look at the man who the Frenchman had said—the idea struck me as preposterous—was dead. He was lying in a queerly stiff attitude. I bent over him and glanced at his head. Yes, he was dead.

The other *brancardier* had evidently gone up to the *abri*. I asked the other American driver whether he thought we should carry the dead man up to the post. We decided not to. He was very heavy. And he was beyond all help. We had an uneasy feeling that there might be more shells. We started toward the post. I felt a trifle bruised all over, for we had been pretty well covered with dirt and stones. One toe felt especially sore, and I wondered whether I might not be hit. But the shoe wasn't cut—it was obviously only a stone bruise. Then I noticed a few drops of blood on my trousers, and I discovered a small tear in the right leg. So I must be hit although I didn't have the least sensation of pain. We went down into the *abri* and the doctor put a bandage on—it was rather a small hole, quite harmless-looking. Dick denied being hit, but they made him undress and discovered a scratch on the shoulder and a light flesh wound further down. We would have preferred staying on duty, but the doctor insisted that we must be evacuated.

Just then our American lieutenant appeared, and at first would hardly believe we were wounded. Indeed, we didn't look or feel it. But he wouldn't hear of our staying, and piled us into my car (the shells hadn't touched it) and drove us straight back to post B. There was quite a little excitement on our arrival, for one of the *blessés* in the car that left just before the fireworks had seen the shells come in and reported that we were annihilated.

We were rebandaged at B and given the anti-tetanus injection. By that time my leg was getting pretty hot, and the thought of the hospital seemed less senseless than an hour before. Then on to the next ambulance—of course, we rode in state on the front seat—and by seven o'clock we had reached the city and our destination. It was a small hospital, right across the street from my mumps abode. We were X-rayed directly, and taken at once to the operating room. The surgeon injected cocaine, poked around for a while, and finally succeeded in fishing out a small piece of shell. Then he sewed me up and sent me to bed. We stayed about eight days in that hospital. It was rather lively, for Y. M. C. A. workers wandered through, giving out bad cigarettes, majors and generals inspected the wards and requested everyone's life history, and our section mates dropped in on us occasionally. Great joy was caused by the receipt of paternal cigars, which came at the most needed moment. One day the *médecin divisionnaire* himself paid us a brief call, leaving an undeserved but appreciated bit of red and green ribbon.

But the food wasn't very good, nor the beds very comfortable, and we were glad to be removed, via river boat, to this present abode. It is a big chateau converted into a French-American hospital, not a handsome edifice itself, but with glorious grounds. The chateau is full, and we live in very spick and span and cheerful barracks, pleasant if a trifle cold. An American surgeon dresses our "wounds," and there are English nurses. Food is excellent. I am convalescing very rapidly—get up, walk quite a lot, and eat tons. I expect we shall be here a few days more, and then perhaps be sent somewhere south for ten days' permission. Not at all bad, is it? I could do very well with a little Riviera, for the weather here, though unmistakably springy, is chilly.

Cheerfully yours,

G. R. CUTLER.

FROM A RUBBER MAN AT THE FRONT.

WITH THE AMERICAN EXPEDITIONARY FORCES.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

DEAR SIR:—Will you please furnish me with the following information:

I. How can one tell exactly when a piece of rubber is perfectly cured, i.e., when it is not one iota under- or overcured? This aside from such tests as smell, feel by hand (or pencil, etc.), or comparison with a piece of same stock known to be cured, i.e., return from stretch, etc.

II. Also how can one tell when friction (as in tires) is cured?

III. How are metal-studded leather treads (as "Michelin Semelles") applied?

As "my bit" over there is to repair pneumatic tires, the information I request is at once for myself and—well others; really a case of wanting to give the best possible service.

While I have repaired tires for several years and feel more or less competent, I would be indeed grateful for any information, particularly along the above lines, which would lead to precision.

Thanking you in advance for any attention you may show me in this matter, I am,

Yours very respectfully,

THOMAS F. GAYNOR, JR.

The Rubber Association of America, Inc.

THE importance of securing every possible foot of cargo space for transatlantic uses in carrying on the war has necessitated the restriction of crude rubber imports and the fixing of prices by governmental decree.

FIXED PRICES FOR STANDARD GRADES.

On April 30 the War Trade Board sent the following instructions to the rubber industry through the Rubber Association of America, Inc.:

You are hereby instructed on and after May 1, 1918, not to endorse any bills of lading for crude rubber or to accept any transfers or to release any crude rubber without securing from the transferees or the applicant for a release, an option and a guaranty in substantially the following form:

Option and guaranty clause to be inserted in present rubber guaranty:

That the United States shall have and is hereby granted an option to purchase at the prices and on the terms hereafter set forth, all or part of the crude rubber covered by this guaranty and also all other crude rubber now or hereafter owned or controlled by the undersigned until sold and delivered to a manufacturer.

In the event of the exercise of such option, the price to be paid for crude rubber will be 62 cents per pound for Standard smoked sheet, c.i.f. New York; 63 cents per pound for Standard first quality First latex crêpe, c.i.f. New York; 68 cents per pound for fine Para, c.i.f. New York, and for other grades the prices shall be at their relative values as hereafter to be determined by the War Trade Board.

That the undersigned will not sell, transfer or deliver any of the rubber covered by the foregoing option, or any part thereof, to or for the benefit of any persons, at a price greater than the prices set forth in the foregoing option, except such rubber as he may be under contractual obligation to deliver under a contract executed and in force prior to May 1, 1918.

Copies of such contracts, sworn to as being correct, must be filed with the War Trade Board within five days from this date. Any deliveries made under such contracts to manufacturers, subsequent to the date on which import restrictions and a plan for the allocation of crude rubber shall be made effective, shall constitute a portion of the amount allocated to such manufacturers under such plan.

THREE MONTHS' ALLOCATION PLAN.

Instructions governing the plan for allocation of crude rubber imports from overseas for three months from May 1, 1918, were published on May 7, as follows:

For the purpose of determining a plan of allocation, it is to be assumed that approximately 100,000 long tons of rubber will be the quantity to be licensed to be imported during the year commencing May 1, 1918. The present arrangements contemplate a three months' trial of this proposition in order that at the expiration of such three months' period, the situation shall be reviewed and the amount to be imported, raised or diminished according to the facts then determined. Of this 100,000 long tons it is estimated that to fulfill the needs of the United States Government and the allied governments, will necessitate the consumption of approximately 35,000 long tons of crude rubber by the manufacturers of this country, leaving approximately 65,000 long tons available for all other purposes.

Government requirements will first be taken care of in full. This will apparently leave to be allocated to each manufacturer for all other purposes crude rubber at the rate of 7/16 of his consumption during the year 1917.

No specific allocation shall be made to importers as such, but import licenses may be issued to importers in connection with manufacturers' certificates referred to in the next succeeding paragraph.

The War Trade Board is already in possession of the quantities of rubber consumed by substantially all manufacturers during the year 1917, so that the actual amount to be allocated can be determined. It is proposed that the War Trade Board shall issue one or more certificates to each manufacturer, certifying that the amount of rubber stated in the certificate is within the allocation to the manufacturer for the three months' period and that importers applying for an import license shall file with their applications the certificate or certificates of the War Trade Board certifying that the manufacturer is entitled to the amount sought to be imported.

The following example will illustrate the result of this method of allocation:

If the total consumption of any manufacturer was 100,000 pounds for the entire year of 1917, he would be entitled to import or to have imported for him May 1, 1918, crude rubber for domestic uses at the rate of 7/16 of this amount or 43,750 pounds, or for the three months under consideration, 1/4 of that amount or 10,937 pounds. In addition to the above, he would be entitled to any amount that he might consume on direct orders from the United States or allied governments.

Based on the figures of consumption now in the possession of the War Trade Board, proper notice will be sent each manufacturer of the amount of rubber, which has been allocated to him for domestic use for the three months' period.

Manufacturers having government orders shall immediately forward to the War Trade Board a sworn statement of the amount of rubber required by them during the ensuing three months to be consumed in government work. Using such statements as a basis, the board will be prepared to issue to these manufacturers certificates entitling them to import from overseas an amount of rubber sufficient to meet the government requirements.

FIXED PRICES FOR OTHER GRADES.

Supplementing the prices previously fixed for the standard grades of rubber the War Trade Board, on May 14 established the following prices, effective May 14, 1918, for other crude rubber sorts:

	CENTS PER POUND
PLANTATION QUALITIES.	
Off standard latex crêpe	62
Off color latex	61
No. 1 amber crêpe	60
No. 2 amber crêpe	60
No. 3 amber crêpe (medium color)	58
No. 4 amber crêpe (darkish color)	57
Prime, clean, light brown crêpe, thick and/or thin	60
Medium color brown, clean crêpe, thick and/or thin	58
Good dark brown crêpe, thick and/or thin	54
Specky brown crêpe, thick and/or thin	50
Massed or rolled crêpe	44
Standard quality smooth smoked sheets	60
Standard quality unsmoked sheets	61
Colombo scrap No. 1 quality	46
Colombo scrap No. 2 quality	44
MEXICAN GUAYULE.	
Guayule, crude, with 20 per cent guarantee of shrinkage	35
Clean, dry and treated guayule, such as:	
Duro, Triangle, Box, Torreon and Alto brands	48
PARA GRADES.	
Upriver medium	63
Upriver weak fine	56
Upriver coarse	40
Upriver caucho ball	40
Xingu ball	38
Lower caucho ball	36
Islands fine	59
Islands coarse	27
Cametá	28
CENTRAL AMERICAN GRADES.	
Central scrap: Esmeralda, Corinto, Mexican, Bluefield,	39
Central slabs: Guatemala, Colombian, Mexican, and other slabs of similar nature,	32

AFRICAN GRADES.

Red Congo ball		48
Black Congo:	Kassai, Lopori, Equateur, Sangha, and similar grades,	50
Benguelas:	32½ per cent shrinkage	29
	28 per cent shrinkage	33
Niger paste and flake		28
Red Kassai: Nuggets, cords and similar grades		42
Massais		55
Rio Nunez		55

MISCELLANEOUS.

Mattogrosso fine	53
Mattogrosso coarse	38
Penang (this includes Java)	37
Caucho tails	35

All the above valuations are on the basis of c.i.f. New York.

REVISION OF QUESTIONNAIRE NO. 1 REQUESTED.

On May 17, the Committee on Rubber and Kindred Products sent the following letter to the trade:

Inasmuch as the Government proposes to audit the figures returned on War Service Committee Questionnaire No. 1, regarding your consumption of crude rubber for 1917, and as it is possible you did not appreciate the importance of the matter at the time the figures were requested, it is suggested that you carefully check the figures which you returned and make any corrections if necessary.

Your allocation will be changed in accordance with the revised figures you send in. The figures should not include jelutong (Pontianak), gutta siak, gutta percha and balata.

The revised figures should be mailed directly to Irving B. Ferguson, C.P.A., 61 Broadway, New York, who will immediately transmit them to the War Trade Board, Washington, District of Columbia.

REPLACEMENT FORMS.

A form of application which is to be used by all manufacturers in applying for replacement of rubber for government purposes, was sent to the trade on May 18, 1918, with the following instructions by the Committee on Rubber and Kindred Products.

The plan is for each manufacturer, as soon as practical after the first of each month, to make an application on the prescribed form, showing the amount of crude rubber he used for government work during the preceding month. This shall be mailed directly to the Bureau of Imports of the War Trade Board, Washington, District of Columbia, which will promptly issue certificates allowing the importation of an equal amount of crude rubber.

The first application for replacement should be made as soon as possible after June 1 for rubber which went into consumption on and after May 6. Application forms will be supplied by The Rubber Association of America, Inc., upon request.

WAR SERVICE COMMITTEE.

At a meeting of the Foreign Trade Sub-Division of the War Service Committee held May 8, it was voted to notify by circular letter, all members of the rubber industry who export part of their products, for the purpose of bringing before them, first, the desirability of reducing in so far as possible the variety of products, qualities, brands and sizes offered for export, and, second, to have prepared and forwarded at an early date specific recommendations with reference to economy in export packing.

In respect of the first suggestion and supplementing letter of March 22, it is again brought to the attention of exporters that the fullest cooperation should exist for the purpose of simplifying the number and diversity of lines and products offered in order to reduce the number to be manufactured. The sub-division committees of the War Service Committee charged with the work of simplifying the number and variety of manufactured products are actively engaged in their work, and it is clearly the duty of exporters to support and aid them in every way possible. You are therefore urged to reduce the number and variety of the different products which are offered for sale for export to the greatest extent possible, in order, first, to aid the work of the other division committees referred to, and, second, to reduce the variety of local stocks to be carried in foreign warehouses and conserve shipping space.

RULING ON CONTRACTS OF MAY 14 AND 15.

With regard to crude rubber transactions between manufacturers, importers and dealers that had taken place on May 14 and 15, at prices above those fixed by the War Trade Board, the following has been published:

We note that a number of transactions are reported as having taken place on May 14 and 15 at prices above the valuations fixed by ourselves in our letter of the 14th instant on the grades of rubber mentioned therein. In response to the inquiry as to whether these contracts should stand, we would reply that transactions made in good faith on May 14 and 15 on these kinds of rubbers may remain (subject to the government option) at the prices agreed upon between buyer and seller upon the condition that copies of such contracts be filed with the War Trade Board promptly.

WAR SERVICE COMMITTEE STANDARDIZES TIRES AND RIMS.

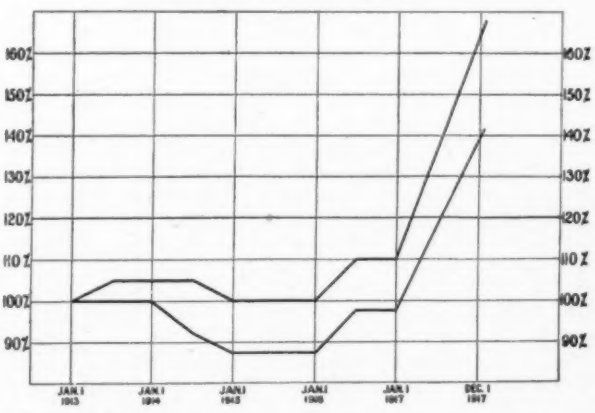
In compliance with the request of the Economy Board of the Council of National Defense, the War Service Committee, appointed by the Technical and Commercial Pneumatic Tire Divisions of The Rubber Association of America, Inc., has adopted as standard the following schedule of pneumatic tire and rim sizes:

Style.	Size.	Rim.
Clincher	30x3½	30x3½
Clincher	31x4	30x3½
Straightside	32x3½	32x3½
Straightside	33x4	33x4
Straightside	34x4½	34x4½
Straightside	35x5	34x4½
Straightside	36x6	36x6
Straightside	38x7	38x7
Straightside	40x8	40x8

This simplified and standardized schedule will ultimately result in the use of seven sizes of rims and nine sizes of tires, adequate to equip with pneumatic tires any motor vehicle up to a two-ton truck.

The Rubber Association of America requests the cooperation of the automobile industry to the end that it conform to the above sizes of tires and rims on cars to be manufactured for the 1919 season, the manufacture of which, in most instances, will begin July 1, 1918.

CHART INDICATING THE PERCENTAGE OF FLUCTUATION IN THE PRICES OF TWO TYPES OF RUBBER BELTING IN COMMON USE DURING THE PAST SIX YEARS.



Compiled by Boston Belting Co.

Rubber Laboratory Organization.

By H. B. Underwood, Chemist.

ABOUT thirty years ago the chemist made his début in the rubber industry. A few pioneer manufacturers, who went to the expense of engaging a chemist, were regarded by the rest of the industry as indulging in extravagance. Even now,

MICROSCOPIC EXAMINATION OF TIRE FABRIC.

DEVICE FOR TESTING THE TENSILE STRENGTH OF TIRE FABRIC.

although every rubber company of any size maintains its own laboratory, the average concern is not getting the most efficient service because it fails to have a full conception of the proper function of a laboratory in the rubber business.

The first step in the evolution of the rubber laboratory in its present form was the installation of a chemist to test the purity of raw materials. As this was simply a matter of routine analysis, the chemist speedily absorbed this function and looked about for more to do. At length, he began to venture into the factory, and when something went wrong he was able to discover the cause and suggest means of correction. Thus began the important function of factory control or the checking up of the goods in process.

TEST FOR UNIFORM THICKNESS OF FABRIC PLIES.

Then arose the delicate subject of compounding. Here, at first, the chemist struck a snag, but knowing what necessary properties the various ingredients should have, and understanding the behavior of mixed stocks, he began to see the advisability of making certain changes in the recipes. Heretofore, these had been kept carefully secreted by the factory executives and were given out to the factory only through elaborate code systems. But, after a struggle, the chemist vindicated his claims and took on the function of determining the compounds.

To these functions may be added the research department in which new developments are studied and a watchful eye kept on the progress of competitors; and recent developments in the use of organic accelerators have in a number of cases put the chemist in charge of a department manufacturing accelerators and other materials employed in compounds.

Thus the chemist has absorbed one function after another until now the laboratory in a representative rubber factory controls the use of all raw materials, and often the design and methods of manufacturing the product. The important functions of the laboratory, taking them up in detail, are as follows:

DIVISION 1. TESTING RAW MATERIALS.

The work of this division is to insure the least possible variation in any of the raw materials that make up the manufactured product. In general, these include rubber, fabric, compounding ingredients, and solvents.

(a) RUBBER TESTING.—This is especially necessary in these days when plantation rubber is almost exclusively used. The variability of plantation rubber is such that every lot should be tested by taking an average sample, mixing it in a standard recipe, vulcanizing the mixing at a standard cure and getting the physical tests. From these tests the different lots of rubber are blended and a resulting mixture is obtained which has a standard tensile strength and rate of cure.

(b) FABRIC TESTING.—This includes testing as to tensile strength, twist and crimp in the thread. Each shipment of fabric is sampled and each roll of fabric used is also inspected over electric lights for defects in weaving.

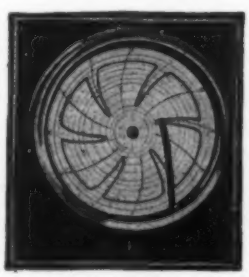
(c) INGREDIENT ANALYSIS.—This is done in the chemical laboratory and consists in the analysis of all compounding materials for purity, and also the compounding and vulcanizing of certain materials for comparison with a fixed standard for color and other properties.

DIVISION 2. FACTORY CONTROL.

The aim of this division is to insure uniformity in the treatment of the raw materials in the factory. As a matter of daily routine, samples are taken from the goods in process at different stages and examined to see if they conform to the proper standard. To illustrate, in the automobile tire department, a section of a casing is vulcanized with a regular lot of casings, the section being made from the same materials as the regular output. This section is so constructed that it can be dissected easily. The component parts, tread, cushion, friction, etc., are tested physically, and also a free sulphur determination is made to see if they are properly vulcanized.

TEST ASSURING CORRECT WEIGHT AND BALANCE OF TREAD.

Any variation is promptly investigated, first, as to conditions in the factory, and if the trouble is not located there, it is taken up by the compounding department, in the development division. A careful watch is also kept of the various control instruments, such as compound scales, thickness gages, tension regulators, temperature controls and steam regulators.



DEVICE SHOWING UNIFORM CURE.

TREAD INSPECTION.

DIVISION 3. DEVELOPMENT.

(a) COMPOUNDING DEPARTMENT.—This consists of two distinct sections, one of which cooperates with the factory control division and the other works on new compounds in connection with the

research department. The factory control division of the compounding department makes any changes necessary in existing compounds to correct troubles which are brought up by the factory control division and not solved in the factory.

The second section of the compounding department provides new compounds to meet the demands of the sales department, or to match the quality of competitors' goods, and also cooperates with the research department in the practical working out in compounds of the new ideas introduced by the research department.

(b) RESEARCH DEPARTMENT.—This work is carried on in two different sections of the laboratory. In one section, which is fitted up as a chemical laboratory, the study of new ideas and the application of scientific principles to the different phases of the rubber business are worked out on a laboratory basis.

In the other section of the research department, the new ideas developed in the scientific laboratory are worked out on a somewhat larger scale so as to make it possible to use these ideas in an industrial sense instead of a purely scientific sense.

(c) MANUFACTURING LABORATORY.—Here the processes developed by the research department are taken over and installed on a scale sufficient to meet factory requirements; and the manufacturing operations are carried on until the process is clearly established, when it is turned over to the factory.

For example, the research department develops a new accelerator, first, in the scientific research laboratory and then in the manufacturing laboratory where the process is worked out as it is expected to be carried on in the factory, but on a small scale.

After all troubles are eliminated, the manufacturing laboratory sets up a plant and actually supplies the factory with the quantity of material needed for several months. When the process is working smoothly, it is turned over to the factory.

DIVISION 4. COMMERCIAL DIVISION.

This division studies new products of competing firms, making both physical and chemical tests, the results of which are given to the development department. The commercial division can also work to good advantage with the sales and advertising departments in supplying them with any needed information.

SUMMARY.

The average rubber factory has a laboratory that has grown with the firm, but often occupies the same position in the organization that it did when its only function was the analysis of pigments; it is an appendage instead of a component part, and certain ties are necessary to bind it solidly to the rest of the factory organization.

A concern large enough to maintain a laboratory with all the functions outlined above, should have an intermediate executive, known as the technical manager, over the laboratory and directly under the executive head of the factory to cooperate with the production superintendent, both being directly responsible to the factory manager.

The technical manager supervises the purchase of all raw materials going into the manufactured product, and also all the operations of the laboratory through the chief chemist. In addition, he supervises the system for testing out in actual use the products made in the factory, and has charge of collecting all data regarding the service which the products give. In the case of a tire company, the technical manager should be closely in touch with adjustment reports and should make himself thoroughly familiar with the character of service the tires give in different parts of the country. He cooperates with the production superintendent and the mechanical engineering department in any changes made in the construction and design of all products made in the factory.

In case the company has two or more factories, each should have a local laboratory with testing and factory control divisions as outlined above, but the development divisions should be located at the main office of the company, where also the technical manager will have his headquarters. From the central office, he should keep in close touch with the heads of the various laboratories and thus be in a position to coordinate and supervise the work of the laboratories and the purchasing department intelligently. In this manner, the purchasing department, which procures the raw materials, and the laboratory which regulates the use of those materials, work in close cooperation.

SUMMER MEETING OF THE S. A. E.

The summer meeting of the Society of Automotive Engineers is to be held at Dayton, Ohio, on June 17 and 18, 1918. The Standards Committee meeting and sections conference will take place June 16. A bureau of information will be maintained in the Union Depot and another at S. A. E. headquarters at the Miami Hotel, to direct all arrivals in regard to accommodations, meeting arrangements, etc. The registration of members and distribution of badges will take place in the small building at the entrance of Triangle Park, and lunch will be served at the park on both days, as well as dinner Tuesday evening, if there is a sufficient demand for it.

The papers to be presented will cover a wide range of subjects. Fay B. Faurote will talk on "Airplanes of To-day," F. W. Caldwell will present information on "Propeller Design," and W. B. Stout will discuss "Present Day Problems in Aeronautics." It is also expected that some one from McCook Field will offer a comparison of modern aviation engines, based on those of foreign make now in Dayton.

Councilor C. M. Manly, E. H. Ehrman, and General Manager Clarkson will present reports on the recent International Aircraft Standards Conference from which they have recently returned to this country.

C. W. Stratford is to present a paper on the "Processes of Petroleum Refining," which will be illustrated by an exhibition of actual refining methods.

P. L. Scott and C. E. Sargent will offer information concerning heavy fuel engines for automotive purposes.

A separate session in the interest of tractor engineering will be held, at which two strong papers by E. L. Sorenson will deal with the "Fundamentals of Tractor Design" and "Design of Farm Implements and Machinery for Use with Tractors."

Automotive military apparatus will be featured in the exhibits and will include, it is expected, the McCook Field collection of foreign engines from England, France, Italy, and Germany, together with ordnance apparatus, military trucks, motorcycles, a captive balloon such as is used abroad for directing artillery fire, and wireless telephony apparatus.

On account of the restricted railroad service, members expecting to attend the convention should make their reservations immediately. Special parking space at Triangle Park will be assigned to those who can drive in, thus helping solve the railroad transportation problem. Reservations for the Orville Wright dinner are already near the 500 mark.

The general arrangements are in charge of the Meetings Committee, consisting of David Beecroft, chairman; Herbert Chase, Fred E. Moskovics, F. E. Place, and C. F. Scott. The members of the Dayton S. A. E. Committee, which will handle many details in connection with the convention, are: Orville Wright, honorary chairman; Vincent G. Apple, chairman; F. H. Hoover, 137 North Ludlow street, Dayton, Ohio, secretary and treasurer; Capt. Howard Blood, F. J. Blose, Carl Buest, John F. Huffman. W. B. Stout, and I. B. Swagles.

THE WAR TRADE BOARD HAS ISSUED "ENEMY TRADING LIST No. 2," naming the persons, firms and corporations declared to be enemies or allies of enemies of the United States. The Trading with the Enemy Act is printed in full, and the lists are arranged by countries, each "enemy" in alphabetical order with city address, and the date of coming under the ban of the Government.

What the Rubber Chemists Are Doing.

TESTING OF RUBBER.[1]

DR. A. VAN ROSSEM has compiled a report on the methods of testing crude rubber as practiced in the laboratories of the Institute at Delft. Below, the salient features of this report are quoted and condensed.

The mechanical properties of ordinary *Hevea* plantation crêpes and sheets, mixed 92½ parts of rubber with seven and one-half parts of sulphur, if not overworked or superheated, may be measured by the coefficient of vulcanization, i. e., the ratio of combined surphur calculated on the rubber. With the increase of this coefficient, these properties change almost continuously; namely, the tensile strength increases, the elongation at break decreases, and the load necessary for a certain elongation becomes steadily greater as the rubber becomes stiffer. This goes on only till the vulcanization coefficient reaches about five, then brittleness of the material is noted and the vulcanized rubber begins to show the properties of vulcanite.

One of the most important conclusions of the Institute is that different plantation rubbers, under the above circumstances, show with a certain vulcanization coefficient approximately the same stress-strain diagram. It may even be taken as probable that then all mechanical properties will be the same. All *Hevea* plantation rubbers do not reach an identical coefficient of vulcanization in the same time, some require three times as long as others. By prolonging the process, slowly vulcanizing rubbers can be brought to the same mechanical properties as quickly vulcanizing ones. As a rule, a longer time for vulcanizing is a disadvantage, and it is not impossible that the durability of slowly vulcanizable rubber is shorter than that of the more rapidly vulcanizing. The velocity of vulcanization is a matter of great importance and usefulness to the manufacturer. It is determined by a series of tests showing the time required to yield a certain vulcanizing coefficient. The latter has been found to increase about in ratio to the time under the chosen conditions of cure. By vulcanizing according to a constant "standard method" and comparing the resulting vulcanization coefficients, a sufficiently accurate insight into the velocity of vulcanization is more easily gained. Having determined for a given sample of rubber its velocity of vulcanization and corresponding mechanical properties, the latter should be compared with the average of the same properties corresponding with the vulcanization coefficient found, as illustrated on the chart below. This method of judging is indispensable, especially for studying the influence of methods of vulcanization which deviate from those mentioned above.

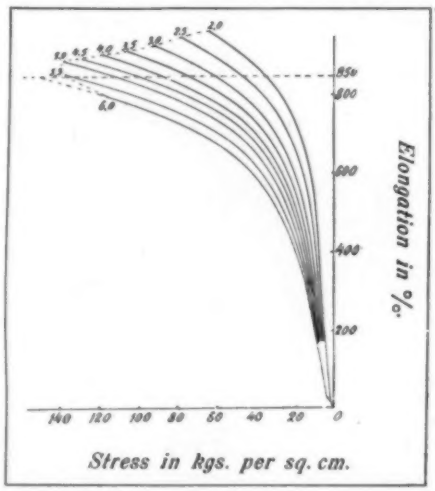
For simple valuation tests the Institute has adopted Fol's standard method of vulcanizing in a mold in open steam. The manipulations for clean plantation rubber are the following, executed one immediately after the other: (1) plasticating on slightly heated rolls; (2) mixing of 92½ parts of rubber with seven and one-half parts of sulphur, which is carried out with carefully dried flour of sulphur in small portions, avoiding loss, and prolonged till the mixture is homogeneous; (3) calendering to a uniform sheet fully one millimeter thick; (4) crosswise pressing, with hand roller, of pieces cut from the sheets to a piece about 20 by 20 cm. square and six mm. thick, any air bubbles included being removed with a pin and renewed rolling; (5) screwing the sample between two polished iron plates, kept five mm. apart with pieces of iron; (6) preheating of the empty vulcanizer; (7) heating the molds with rubber sheets in the vulcanizer, raising the temperature in four minutes to 148.25 degrees C. (52 pounds); (8) vulcanizing for one and one-half hours at this pressure; (9) blowing off the pressure; (10) unscrewing the molds while hot and freeing the samples from the iron plates. The specimens are kept for two or three days before being tested.

If the rubbers are contaminated with dirt or non-rubber substances, they are washed in lukewarm water, crêped on the washing rolls and dried in a dark room. The temperature during vulcanization must be closely regulated. A rise of ten degrees C. occasions doubling of the velocity of vulcanization. Even an error of one degree C. causes a very noticeable deviation in the results of the valuation.

The comparatively simple method pursued at the Institute for the determination of the vulcanization coefficient of rubbers vulcanized only with sulphur, without the addition of either inorganic or organic fillers, is as follows:

Five grams of the finely cut vulcanized sample is extracted for ten hours in a Soxhlet apparatus in order to remove completely the free sulphur. The combined sulphur in the extracted sample is determined according to Rothe's method which is based on the destruction of organic matter by strong nitric acid in the presence of magnesium nitrate. The free sulphur in the acetone extract is determined according to Frank and Marckwald.

The determination of the vulcanization coefficient loses much of its value when the fillers are able to combine with sulphur. A method to determine the distribution of sulphur between the rubber and the fillers has not yet been worked out. In order to study the influence of fillers on the binding of sulphur or on the mechanical properties after vulcanization, it seems advisable to choose, for the present, only such as do not combine with sulphur. In carrying out the tensile strength test preference is given to the use of the Schopper machine. The breaking load and the elongation at break have generally been used by rubber technologists by preference to designate the elastic properties of vulcanized rubber. These data are not particularly suited for this purpose and another way of indication is preferable, namely, the choice of the figure giving a measure for the course of the curve, from the Schopper machine, made for a stress in kilograms per square centimeter for an elongation of 850 per cent, which is the figure for the elongation attained by practically all rubbers except those strongly overvulcanized.



The most probable curves from the Schopper machine for rubbers after standard vulcanization with different vulcanization coefficients are given in the above chart. At the upper end of each curve is the coefficient of vulcanization of the corresponding rubber sample.

These standard curves were derived from numerous data on First latex stress strain diagrams correlated with their coefficients of vulcanization. They indicate the most probable values for the stress necessary to produce an elongation of 850 per

[1] Communications of the Netherland Government Institute for advising the rubber trade and the rubber industry—Part V.

cent for definite values of the vulcanization coefficient; their end points show the most probable stress at break as well as the most probable elongation at break. The most probable end points of the curves are connected by a dotted line whose course shows clearly that initially the most probable stress increases regularly with the vulcanization coefficient. With a vulcanization coefficient of 5.0 the optimum is reached, afterward the dotted curve declines rapidly. All the curves intersect the line which indicates the elongation of 850 per cent except the one belonging to a vulcanization coefficient of 6.0, for which the most probable end point is situated lower. The course of this curve past the most probable point of break is indicated by a dotted line produced to the line at the elongation of 850 per cent.

It will be noted that the stress for an elongation of 850 per cent deviates much more markedly for the different values of the vulcanization coefficient than the elongation with a constant value of the stress. This is the reason why the first rather than the second figure has been chosen as characteristic for the curves.

Various rubbers with the same vulcanization coefficient produce elongation curves which do not correspond accurately with the most probable curve for that coefficient. Deviations both above and below are normal. Real "abnormal vulcanization" occurs when intersection takes place between the curve found and the standard curves. An "abnormally vulcanized" rubber is not one which vulcanizes at an exceptionally fast or slow rate, but one which, taking the vulcanization coefficient into account, develops other mechanical properties than are the rule with ordinary First latex *Hevea* rubbers. In a similar way certain average breaking loads and elongations at break belong to a definite vulcanization coefficient for First latex *Hevea* rubbers, and a rubber which deviates considerably may be called "abnormal."

It must be specially pointed out that both methods of judging this normality are independent of each other. In later communications mention will be made of cases in which the *course* of the curve is fairly normal, but the *end point* very abnormal. This shows that one must always judge the stress-strain diagrams according to both criteria.

(To be continued.)

THE ANAEROBIC COAGULATION OF HEVEA LATEX.

B. J. Eaton and J. Grantham in collaboration have shown that the natural coagulation of *Hevea* latex under anærobic conditions is due to the presence of certain micro-organisms which infest the latex after it leaves the tree. They have also shown that coagulation, under these conditions, is not always complete with latices from trees of different areas, but that complete coagulation, under anærobic conditions, can be obtained by the addition of small quantities of various sugars to latex, which enables the particular organism or organisms responsible for such coagulation to increase at the expense of other (ærobic) organisms which prevent coagulation. In the "Agricultural Bulletin," F. M. S. (December, 1917), B. J. Eaton supplements the above remarks, in part, as follows:

The final proof of the correctness of our theory has now been given by two French scientific officers, M. M. Denier and Vernet, in a paper on the bacteriology of the natural coagulation of *Hevea brasiliensis* latex ("Comptes Rendus," July, 1917). These workers have isolated an organism from *Hevea* latex, which, under anærobic conditions, is capable of effecting coagulation within 24 hours, although in some cases it was found necessary to add saccharine matter to the latex.

The work of the French investigators confirms that of Eaton and Grantham as to the precautions necessary in order to obtain perfect coagulation. They further state that zinc vessels must not be used to contain latex, suggesting in explanation the toxic action of zinc salts on the organisms in the latex.

Eaton questions the validity of the enzyme theory of coagulation recently advocated by Whitby and by Campbell, stating that no enzyme was isolated by either of these investigators and their results can be explained on the bacterial theory, which has now been proved definitely by the isolation of an organism capable of effecting such coagulation. Continuing Eaton's criticism:

Campbell bases his theory of a coagulating enzyme chiefly on the effect of soluble calcium salts in causing coagulation of *Hevea* latex, comparing the influence of this salt with its influence on the clotting of blood and milk. It is well known, however, that soluble calcium salts and other dibasic and tribasic salts of the metals coagulate *Hevea* latex, and this effect is probably a chemical or physical effect similar to that of the acids, except that larger quantities of the salts are required.

On the other hand, if an insoluble salt is produced, e. g., by precipitating the calcium as insoluble calcium oxalate, coagulation is prevented. The addition of salts, such as potassium oxalate and sodium fluoride, to inhibit the effect of soluble calcium salts, can also be explained on the bacterial theory since these salts are bactericides. It is also probable that soluble calcium salts have an influence in accelerating the biological changes due to living organisms, in a similar manner to saccharine substances, by favoring the anærobic organisms responsible for natural coagulation, at the expense of other organisms which inhibit coagulation. A possible explanation of this is to be found in the assumption that the calcium salts combine with the proteins in the latex, the decomposition of which is known to inhibit coagulation, owing to the formation of alkaline bases.

In view of the results of our researches on the bacterial coagulation of latex, confirmed by Gorter and Swart, who isolated lactic acid from latex produced by this bacterial action, and the final isolation of an anærobic organism, capable of effecting natural coagulation, by Denier and Vernet, the coagulating enzyme hypothesis cannot be accepted without further proof.

WATERPROOFING PROCESSES FOR TEXTILE FABRICS.

Textile fabric waterproofing processes were summarized as follows, by William H. Adams, before the National Tent and Awning Makers' Association:

Nearly every method now in use was patented between 1877 and 1888. Later patents are largely modifications of these.

There are five principal processes in successful use to-day.

1. The direct application of tars, bitumens, oils or waxes, with or without the aid of heat.

2. The treatment of fabrics with waterproof materials dissolved in volatile solvents.

3. The chemical production in the fabric of water repelling metallic oxides or salts, or of metallic soaps, or the use of hot, watery emulsions of easily melted waterproof materials to saturate fabrics which retain the waterproofing after the water in the emulsion is dried out.

4. The use of various compositions of rubber, gums and oils, vulcanized by sulphur.

5. Waterproofing by partially dissolving the material of the cloth itself in chemicals which leave the partially dissolved material in the form of a glaze or coating on and in the unchanged material of the fabric.

Several processes are sometimes used in succession or combination. Vulcanized rubber is the most completely waterproof because it forms an impervious and continuous elastic coating attached to the surface of the fabric. Oxidized drying oils produce the well-known oil ducks, enamel ducks, and oil clothing. The process known as oxide treatment or "cravenetting" is very largely used for rain-proofing clothing and light fabrics. Paraffin goods are of relatively low cost, and correspondingly wide application for many general uses. Waterproofings made with volatile solutions applied to specially prepared fabrics possess considerable softness, flexibility, a leathery feel, and great permanence.

The so-called "Willesden" goods are prepared by strong ammoniacal solutions of copper which superficially dissolve and gelatinize the fabric. They are exceedingly beautiful green fabrics with marked silky sheen and considerable waterproof qualities and are the most nearly mildew-proof fabrics made.

The "viscose" process uses strong caustic soda and bisulphide of carbon as solvent and gelatinizing solution. The gelatinized fabrics are so different from other waterproof goods that they occupy a special field.

CHEMICAL PATENTS.

THE UNITED STATES.

PLASTIC COMPOSITION.—A plastic composition consisting of rubber, comminuted asbestos, zinc oxide, white lead, sulphur, litharge, and lime, in stated proportions. (William E. Bates, Denver, Colorado. United States patent No. 1,260,625.)

RUBBER COMPOSITION.—A composition comprising cotton, powdered asbestos, crude rubber, gum acacia, gum tragacanth, and oil of eucalyptus. (George O. Morse, Des Moines, Iowa. United States patent No. 1,262,828.)

CONDENSATION PRODUCT AND PROCESS.—A phenolic condensation product formed from a fluid mixture of phenolic and active methylene-containing bodies, including reaction by the application of heat. (Kirk Brown, Montclair, and Donald S. Kendall, East Orange, both in New Jersey, assignors to Condensite Co. of America, Bloomfield, New Jersey. United States patent No. 1,263,031.)

LEATHER SUBSTITUTES.—The process of forming leather substitute comprising dissolving a filler-base in a volatile solvent; mixing other dope ingredients in the resultant solution; driving out substantially all this volatile solvent; maintaining fluidity by heating, and applying the resultant dope directly to a body fabric. (Emil Weinheim, New York City. United States patent No. 1,263,171.)

WATERPROOF FIBER SHEET AND INSOLE.—A sheet of fibrous material rendered pliable by chemical treatment, and with surfaces overlaid with a layer of pyroxylin to retain the pliable medium, repel moisture and serve as a wearing surface (William G. Abbott, Jr., Wilton, New Hampshire, to J. Spaulding & Sons Co., Rochester, New Hampshire. United States patent No. 1,263,186.)

RUBBER COMPOSITION.—A rubber composition consisting of twelve ounces of rubber, three-fourths to two and one-fifth ounces of dry cork flour, ten and one-fifth to eleven and three-fourths ounces of powdered aluminum flake, and one and one-fifth to three and one-tenth ounces of gelatinous raw hide. (Eugene Von Vargas, Washington, District of Columbia, assignor to Achilles Rubber and Tire Co., Inc., Binghamton, New York. United States patent No. 1,263,297.)

RUBBER RECLAIMING PROCESS.—Rubber waste is subjected to the action of a reclaiming solution comprising the ingredients named, proportioned in parts by weight as follows: Aniline oil, 10; rubber resin, 10; mineral hydrocarbon, 2; carbolic acid, 1. The action of this solution is conducted in the presence of heat and agitation. A second reclaiming solution, proportioned by weight as follows, is introduced into the mass: Acetic acid, 5; turpentine, 1; naphtha, 3. Reclaimed rubber is separated. (Frank L. Kryder, Akron, Ohio, and Edgar W. Snyder, Indianapolis, Indiana. United States patent No. 1,263,567.)

WATERPROOF COMPOSITION AND PROCESS.—A composition consisting of fiber affording tensile strength, and a filler of spent bark finely divided crosswise of the grain so as to be saturable from end to end. These materials are felted into sheet form and intimately impregnated with a waterproofing material. (Van A. Wallin, Grand Rapids, Michigan, and Otto A. Heppes, La Grange, Illinois. United States patent No. 1,263,823.)

FLEXIBLE FLOOR COVERING.—A flexible floor covering comprising ocotillo gum, linseed oil, and an inert filler. (Edgar W Snyder, Los Angeles, California, assignor, by mesne assignments, to Ocotillo Products Co., Indianapolis, Indiana. United States patent No. 1,269,990.)

THE DOMINION OF CANADA.

RUBBER COMPOUND.—A method of making rubber compounds consisting of mixing high-grade stiff rubber, aniline and petrolatum in such proportions as to impart to the compound after vulcanization softness, a high degree of elasticity, and smoothness of texture, and subjecting the mixture to the action of heat at a temperature to permit thorough penetration of the softening agent to produce a homogeneous material. (The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of Erwin E. A. G. Meyer, Detroit, Michigan, U. S .A. Canadian patent No. 181,460.)

METHOD OF VULCANIZING RUBBER.—The method of curing rubber articles, consisting of first subjecting them to the action of sulphur chloride and then to a mixture of aniline and benzol, whereby acids in the rubber are neutralized. (The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of Theodore Whittley, Upper Montclair, New Jersey, U. S. A. Canadian patent No. 181,461.)

LEATHER SUBSTITUTE.—The method of manufacturing leather-like material, which consists of boiling a mixture of linseed oil and calcium rosinate until it assumes a gelatinous consistency, compounding the rosinated oil with American ochre and iron oxide, impregnating fibrous material with the compound, and finally oxidizing the material. (The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of Albert G. Emery, New York City, U. S. A. Canadian patent No. 181,770.)

IMPREGNATED FIBER.—A new article of manufacture comprising a fibrous base containing a dye and impregnated with a stiffening composition formed by melting up resin with linseed oil, thinning the resulting mixture with gasoline and adding a quantity of Japan drier. (The Canadian Consolidated Rubber Co., Limited, assignee of William B. Wiegand and Walter Uffelman—all of Montreal, Quebec, Canada. Canadian patent No. 181,771.)

VULCANIZING PLASTIC SUBSTANCE.—A process of treating a vulcanizable plastic in a mold at a vulcanizing temperature, causing an expansion of the plastic at a varying rate, and discontinuing the heating medium upon attaining a desired rate of expansion. (The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of Edwin E. A. G. Meyer, Detroit, Michigan, U. S. A. Canadian patent No. 181,924.)

THE UNITED KINGDOM.

VULCANIZING INDIA RUBBER.—Products of the interaction of paranitrosodimethylaniline or its homologs and sulphur are used for accelerating the vulcanization of rubber. One molecular proportion of paranitrosodimethylaniline is heated for instance with 1-2 atomic proportions of sulphur to about 130-135 degrees C., the reddish fumes evolved condensed to a yellowish-red substance and a dark-brown resinous residue is left. Either of these products may be used as an accelerator. As an example of the use of the products, 100 parts of rubber are mixed with 10 parts of sulphur and 0.5 parts of either product, and the mixture is heated under a steam pressure of 40-45 pounds per square inch for 30-40 minutes. (S. J. Peachey, 5 Yew Tree Road, Davenport, Stockport, England. British patent No. 113,570.)

ENERGINE.

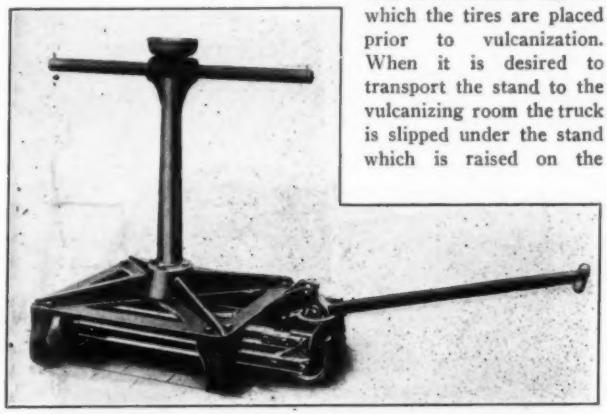
Energine is the trade name given to a pure, specially refined gasoline which is particularly advantageous for use as a solvent and cleaning liquid in rubber manufacturing operations. It is free from paraffin, mineral grease, sulphur, dirt or water, and leaves no residue on evaporation. It is said not to take fire from friction or static electricity as ordinary gasoline does, which makes it safer to use in spreader work. The specific gravity of Energine at 60 degrees F. is 0.7093 or 68 degrees Bé. Its various fractions distil over at the following temperatures Centigrade. Distillation begins at 60 degrees C. Successive fractions of ten per cent pass over at following temperatures:

1st	60—83C.	6th	99—103C.
2nd	83—88	7th	103—107
3rd	88—92	8th	107—113
4th	92—95	9th	113—122
5th	95—99	10th	122—154

New Machines and Appliances.

PORTABLE TIRE-BUILDING STAND.

A UNIQUE combination of a tire-building stand and a lift truck by which the former is made portable, is the subject of the accompanying illustration. The stand is provided with a horizontal bar on which the tires are placed prior to vulcanization. When it is desired to transport the stand to the vulcanizing room the truck is slipped under the stand which is raised on the

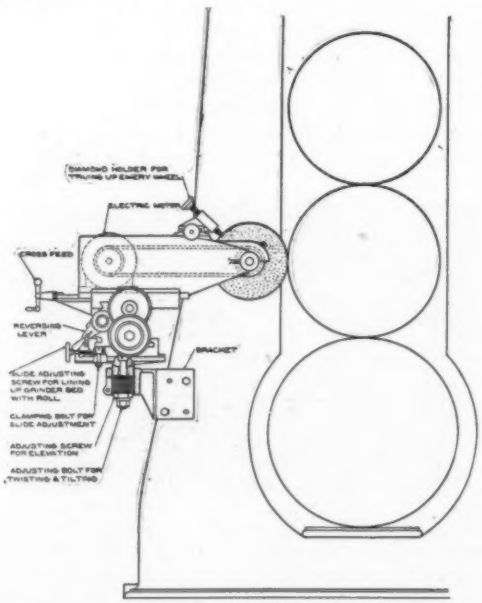


truck platform by means of a fulcrum. The truck platform is lowered by compressed air and the tire-building stand deposited on the floor when the truck is readily removed from under the stand.

The truck and stand have been designed to withstand rough use and there is practically nothing to get out of order. This apparatus is of special interest for conserving floor space and conveniently handling tires awaiting vulcanization. (Eau Claire Manufacturing Co., Eau Claire, Wisconsin.)

A PORTABLE CALENDER ROLL GRINDER.

When the surface of a calender roll becomes worn it is trued up and recrowned by a grinding process. This operation is



usually performed while the rolls are in place, by a portable machine especially designed for the purpose. The grinder shown in the illustration is adjustable to any width of roll that is less than the extreme width for which it is made and can be reversed at any point. The arm on which the emery wheel is mounted may be adjusted in and out to accommodate different setting of the rolls in relation to the housings. The emery wheel is driven by a motor at about 1800 revolutions per minute, and the traverse of the machine is obtained by a one-inch belt, driven from the line-shaft. By means of a special device the brackets may be tilted, twisted, and lined up, as the occasion may require. The ends of the grinder bed are adjustable in and out, whereby the desired crown is applied to the roll.

The machine is furnished with a one-horse-power motor to suit the current in use, and by connecting the motor to a convenient lamp socket and the traverse belt pulley to the nearest line of shafting, the grinder will be ready for use. (B. S. Roy & Son Co., Worcester, Massachusetts.)

AKRON-WILLIAMS TIRE REBUILDING STAND.

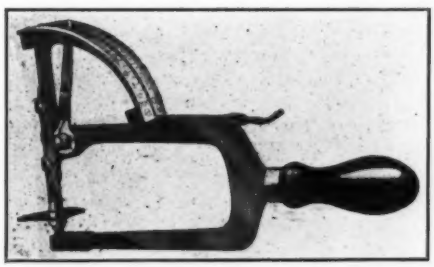
This new stand is especially designed for tire repair shops' use on retread jobs and major sectional repairs, being similar to stands used for hand operations in tire factories. Unlike the latter, however, it takes up a minimum of floor space and is much lighter in weight, without sacrificing convenience or strength.

Another new feature is a spring ratchet attachment which permits the tire being turned either way at will, or being locked rigidly in any desired position. (The Williams Foundry & Machine Co., Akron, Ohio.)

THE NEW SUPERIOR LEATHER GAGE.

A leather gage that may be readily adapted to the use of rubber manufactures is here illustrated and described for its suggestive value.

It is made of nickeled steel, with a rack and gear that is practically indestructible. The pointer travels between two indexed curved plates, or indexes, that are graduated in millimeters and ounces, and for especially close work, can be furnished with indexes graduated in tenths of millimeters and half ounces.



The adjusting block on the lower jaw of the gage is made movable by the use of a ball and socket joint, which allows the jaw to accommodate itself to any variation or unevenness in the leather.

If, at any time, the pointer should not register properly, it can be adjusted by turning back the screw shown on the side, adjusting by the screw at the bottom, and then tightening up the side screw again.

The gages are made in two sizes: No. 1, which is 4½ inches, and No. 2, which is 6 inches in depth. (The Woburn Machine Co., Woburn, Massachusetts.)

TESTING LINEMEN'S RUBBER GLOVES.

Linemen's gloves are made of a pure compound and vary in thickness from 0.038 inch to 0.040 inch (0.97 m.m. to 1.02 mm.), having a guaranteed dielectric strength of 10,000 volts. A horsehide glove is worn over the rubber glove when in use to protect it from mechanical abrasion. The rubber gloves first undergo an acceptance test when received from the manufacturer, and periodic tests are given to the gloves in active service.

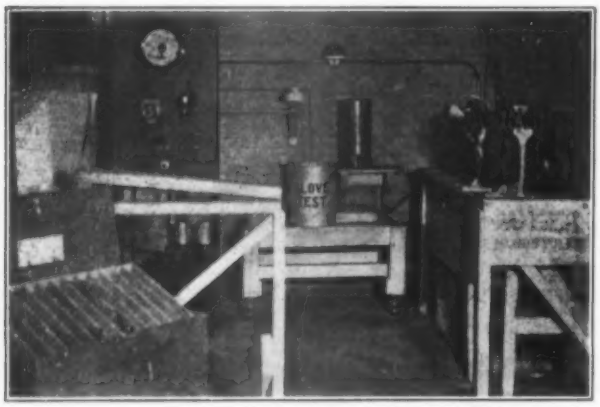


FIG. 1—OUTFIT USED IN TESTING RUBBER GLOVES.

The apparatus for making the necessary tests is simple, but complete. One pair of gloves is tested at a time, being slipped into a specially constructed holder made of copper, shown in Fig. 2. This permits the glove to stand with the wrist or gauntlet end open, so that it can be readily filled with water to within 1 inch (2.54 cm.) of the top. For convenience in filling, a spigot is used on the tank shown against the wall in Fig. 1.

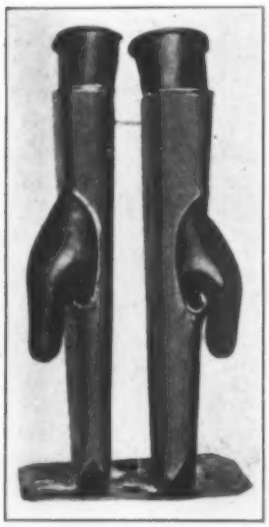


FIG. 2—SPECIALLY CONSTRUCTED COPPER HOLDERS FOR TESTING GLOVES.

The glove holder is immersed to within an inch of its top in an iron bucket of water. Ten thousand volts is applied between the water inside the gloves and that on the outside. The transformer is located on the floor behind the switchboard, its high-tension insulators being visible in Fig. 1. The voltmeter shown on the switchboard is connected to the 110-volt or low-tension side of the transformer, but its scale is calibrated to give the corresponding high-tension voltage. A rheostat is connected directly across the 110-volt line and arranged to give an unbroken range of voltages from zero to full rated potential of the primary winding. (C. D. Ward in "Electrical World.")

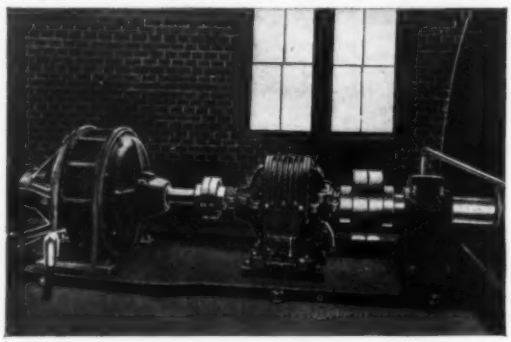
THE TURBO-GEAR.

In connecting rubber refiners, washers, mills and calenders to the driving unit, some form of speed transforming equipment is necessary. Similarly in the power plants various motors, turbines or engine driven units require, for efficient operation, a greater or less speed than the driving machine.

A speed changing gear that is designed to meet the special requirements of rubber mill practice is here shown.

It consists of an internal double helical gear, a double helical pinion cut integral with the high speed shaft and three intermediate double helical gears. The latter are mounted on steel shafts secured to the cast steel slow speed member. On this slow speed member, which is part of the slow speed shaft, are mounted two heavy-duty ball bearings, one on each side of the gears, and are supported directly by the casing. The gears are completely enclosed in a dust and moisture proof cast iron casing and are lubricated by a self-contained, forced feed lubricating system.

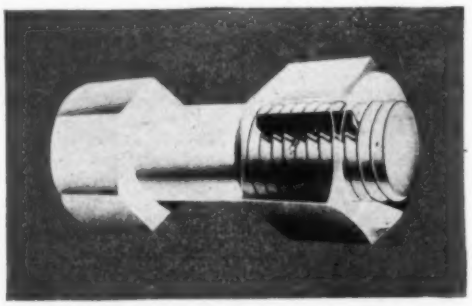
In driving a calender with a high speed motor, the gear operates in the following manner. The motor is connected to the pinion shaft (small diameter shaft) of the gear, causing the pinion shaft to rotate and turn the intermediate gears. As the internal gear is held stationary, the intermediate gears not only rotate but revolve about the pinion shaft as a center. The intermediate gears, are mounted in the low speed member which rotates as the intermediate gears revolve, and in this manner the speed transformation is accomplished as the calender is connected to the large diameter slow speed shaft. This gear will drive in either direction of rotation and the high and low speed



shafts are in the same straight line and revolve in the same direction. It is supplied in any ratio from 4 : 1 and up and in any capacity from 1 to 20,000 horse-power. (Poole Engineering & Machine Co., Woodbury, Baltimore, Maryland.)

ALLIGATOR LOCK NUTS.

The severe strain and constant vibration of heavy machinery cause the foundation bolts to work loose, requiring frequent



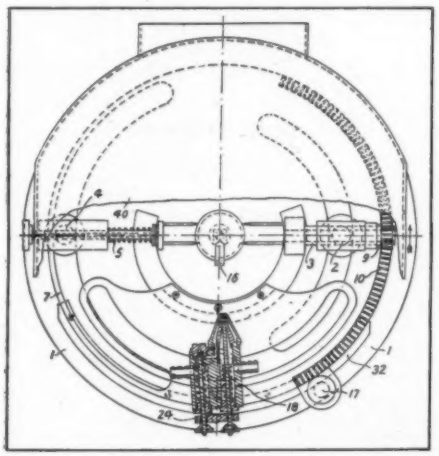
attention and renewals that are both annoying and expensive. The lock-nut here illustrated is designed to meet the exacting requirements of heavy rubber mills and in fact wherever nuts are liable to become loose. The alligator lock-nut, as it is called, is complete in one piece, without keys, extra nuts, washers or separate parts whatever.

These nuts are turned forward on bolts as easily and conveniently as ordinary bolts, but they never turn backward. They are supplied in square or hexagon shape, finished, semi-finished and hot pressed, in sizes from ⅝ to 1½ inches. (Patterson Lock Nut Manufacturing Co., 14 E. Jackson Boulevard, Chicago, Illinois.)

MACHINERY PATENTS.

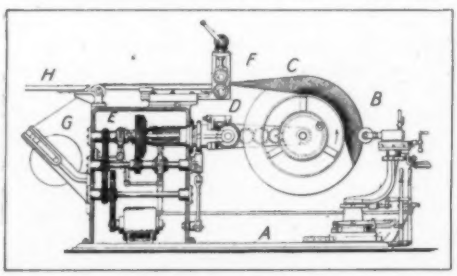
GOLF-BALL-PAINTING MACHINE.

IN the apparatus here shown for painting golf balls or other round or cylindrical objects by spraying, a ball is held between chucks 3 and 5, carried by supports 2 and 4, on a horizontal base-plate 1. One of the chucks is spring-mounted and the other is rotated by a pinion 9, engaging a rack 10 on a frame 7 pivotally mounted on a central pin on the base-plate 1, and reciprocated by a handle 17 or by power. A spray-producer 18 is fixed to the frame 7 and the air and liquid valves are operated by contact of a lever 24 with a cam-plate 32 fixed to the base-plate. When objects of irregular contour are to be treated, the spray-producer may be mounted so as to be moved in a radial slot in the frame 7 by cam slots in the base-plate. A mask 16 may be used to protect a part of the article not to be painted, and a hood 40 through which air is drawn may be used to remove excess spray and fumes.—(C. L. Burdick, 4 Eastern Road, Wood Green, London. British patent No. 113,021.)



KREMER'S TIRE-BUILDING MACHINE AND METHOD.

This invention covers an improved method for the manufacture of pneumatic tires. Means are provided for spinning down one side of the tire in a direction lengthwise of the warp threads, and when the core is reversed and rotated in the opposite direction, the other side of the tire is spun down in a similar manner.



The machine comprises a suitable base *A*, on which is mounted the spinning mechanism *B*, the rotary core *C*, the mechanism *D*, for reversing the rotation of the core and for swinging it around on its axis of rotation, the mechanism *E*, for driving the core forward at fast and slow speeds, the tension mechanism *F*, for feeding the fabric under the proper tension, the reel *G*, from which the fabric is fed and the table *H*, on which the fabric is made up when the reel is not used.

After the fabric has been fed to the core and is ready to be spun down, the core is rotated forward at fast speed and the spinner held against that side of the fabric in which the warp threads extend diagonally and rearward relative to the direction of movement of the core. When one side of the fabric has been spun down, the core is stopped and the core-holding arm rotated, bringing the opposite side of the core into position to be engaged by the spinner. The rotation of the core is then reversed and the remaining side of the fabric is spun down in the proper way, to preserve or produce the necessary tension on the warp threads. (Franklin W. Kremer, Rutherford, New Jersey. United States Patent No. 1,263,681.)

OTHER MACHINERY PATENTS.

THE UNITED STATES.

NO. 1,260,291. Tube repair vulcanizer. J. T. Alvis, Fort Worth, Texas.

1,260,320. Rubber-working machine. George W. Bulley, Chicago, Illinois.

1,260,580. Repair vulcanizer. L. Risk, Minneapolis, Minnesota.

1,260,684. Rubber-mixing machine. F. Kempter, Stuttgart, assignor to Cannstatter Misch-und Knetmaschinenfabrik, Cannstatter Dampf-Backofenfabrik Werner & Pfleiderer, Cannstatt, Wurttemberg—both in Germany.

1,260,990. Vulcanizing apparatus. H. J. Doughty, Edgewood, Rhode Island, assignor to Doughty Tire Co., Portland, Maine.

1,260,992. Motor tire applying apparatus. W. C. Stevens, assignor to the Firestone Tire & Rubber Co.—both of Akron, Ohio.

1,262,598. Repair vulcanizer. J. C. Heintz, Lakewood, and G. Ruf, Cleveland—both in Ohio: said Ruf assignor to said Heintz.

1,262,695. Apparatus for molding tires. F. Paulsen, Minneapolis, Minnesota.

1,263,286. Machine for trimming tires. E. D. Putt, assignor to the Firestone Tire & Rubber Co.—both of Akron, Ohio.

1,263,292. Bias fabric assembling table. W. C Stevens, assignor to the Firestone Tire & Rubber Co.—both of Akron, Ohio.

1,263,293. Fabric handling truck. W. C. Stevens, assignor to the Firestone Tire & Rubber Co.—both of Akron, Ohio.

1,263,400. Tire former or core. A. A. Frank, Milwaukee, Wisconsin.

1,263,406. Magnetic separator. A. L. Hadley, Fort Wayne, Indiana, assignor to General Electric Co., Schenectady, New York.

1,263,855. Winding machine. W. T. Childs, assignor to The Akron Rubber Mold and Machine Co.—both of Akron, Ohio.

1,263,923. Tire wrapping machine. F. M. Pierce, assignor to Pierce Wrapping Machine Co.—both of Chicago, Illinois.

1,263,924. Double wrapper wrapping machine. F. M. Pierce, assignor to Pierce Wrapping Machine Co.—both of Chicago, Illinois.

THE DOMINION OF CANADA.

181,452. Wire cleaning machine. C. C. Wickwire, Cortland, New York, U. S. A.

181,588. Repair vulcanizer. C. W. Griffith, Altoona, Pennsylvania, U. S. A.

THE FRENCH REPUBLIC.

485,543. (January 15, 1917.) Press for vulcanizing rubber articles in molds. India Rubber Society "Bogatyr," Limited, and J. A. M. Talalay.

485,544. (January 15, 1917.) Process and heater for vulcanizing. India Rubber Society "Bogatyr," Limited, and J. A. M. Talalay.

485,636. (May 29, 1917.) Plate press for the manufacture of insulating plates by means of insulating sheets gummed together. Emil Haefely & Co.

PROCESS PATENTS.

THE UNITED STATES.

1,260,384. Method of making inner tires. J. Huebner, assignor to Pan-American Rubber Co.—both of Milwaukee, Wisconsin.

1,263,141. Process of making hollow rubber articles. H. R. Strauss, Cleveland Heights, assignor to The Arnar Co., Cleveland—both in Ohio.

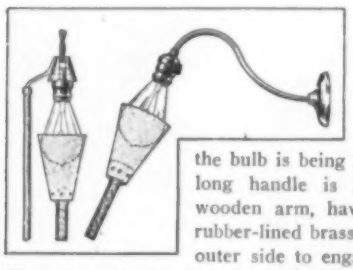
1,263,462. Method of vulcanizing rubber. W. P. Payne, assignor to L. Candee & Co.—both of New Haven, Connecticut.

AIRPLANE CONSTRUCTION.—Hard rubber-containing sheets for airplane structural elements, for example the wings, pontoons, rudders, stabilizers and wind shields, are formed by heating a hard, rubber-containing sheet to give it greater extensibility, securing the stretched sheet to a supporting-frame, and permitting the sheet to shrink. The entire sheet may be heated simultaneously, or portions of the sheet may be heated successively, for example by a flat-iron. The sheet may be temporarily secured to the frame before heating and stretching. (W. J. Mellersh-Jackson, 28 Southampton Buildings, London. [Goodyear's India Rubber Glove Manufacturing Co., Naugatuck, Connecticut, U. S. A.] British Patent No. 113,736.)

New Goods and Specialties.

RUBBER HANDLERS FOR ELECTRIC BULBS.

A FUNNEL made from heavy sheet rubber, attached to a long pole or handle of light, strong wood, will assist materially in removing and replacing electric light bulbs at any height, without the necessity for a ladder. If the bulb is on a fixture, such a tool will be all that will be required. If it is on a drop-cord, however, an auxiliary tool can be used to advantage to hold the socket while the bulb is being manipulated. On another long handle is fitted a short metal or wooden arm, having on the end a small rubber-lined brass cup with a slot down the outer side to engage the electric light key. When the swinging bulb is firmly held with this device, it is a simple task to remove the bulb with the rubber funnel on the other handle. (I. C. McDonnell, Toronto, Ontario, Canada.)



WATERPROOF TOILET GOODS.

The "Nu-e-ra" rubber dress shield has the distinction of a really new feature in the protruding sewing seam running across it at the junction of the two flaps, so that it may be firmly sewed into place in any garment without damage to the rubber contained within it. The trade mark is registered in the Patent Office.

The "Snugfit" baby pants are patented. They have draw-strings at the leg-holes as well as at the waist, besides buttons up the sides, so that they are quickly adjusted. They are waterproof and fit comfortably over the diaper, but can be easily removed. The dress shields and the baby pants are both durable and washable. (I. B. Kleinert Co., 719 Broadway, New York City.)

RUBBER EYE-BATHING DEVICE.

A clever eye-bathing device that does away with the awkward eye-cup and risk of wetting attending the usual methods of bathing the eyes, has been recently patented and is shown in the accompanying illustration. A pair of special eyecups, shaped to fit the face, and equipped with glass fronts, are held in place by a strap which fastens around the head. These cups are connected with inlet and outlet tubes from a water faucet or slightly elevated container to a receptacle for the waste water. With the exception of the glass, all the parts are of rubber, hard rubber being used for the eye-cups themselves and red rubber tubing for the connections. The device can be used by a person in any position and may be quickly adjusted for bathing either eye alone or both eyes at once. It is being used successfully in some eye clinics. (Friedrich Maier, 231 Niles street, Elizabeth, New Jersey.)

PERFORATED BATH-MIT.

A device which we are assured is not new, but which should offer suggestion to some dealer who is looking for a novelty, is shown in the illustration. It was made of sponge rubber and was called the "Unika Wonder" perforated bath mit. It fitted the hand loosely and provision was made for inserting a small cake of coap between the palm of the hand and the mit. This mit came in four colors—white, red, blue, and pink, and was enclosed in a sealed sanitary, transparent envelope. (United States Rubber Co., 1790 Broadway, New York City.

THE "USCO" RUBBER HEEL.

The illustration shows a new type of rubber heel, attached to the boot or shoe without cement. This is accomplished by the particular curve of the concave inner surface which is shaped just enough to hold the rubber firmly against the leather heel without causing it to pull on the nails which hold it in place. The wearer is therefore assured that the heel will not loosen if properly applied. The close fit of the rubber also provides an effective means of preventing the entrance of minute particles of sand or of water between the heel and the leather above it. Particular thought has been given to the placing of the nail-holes so that they may give the maximum trim without reducing the holding power. (United States Rubber Co., 1790 Broadway, New York City.)

THE "WIZARD" HEEL-LEVELER AND ARCH SUPPORT.

The latest development of means for assisting the bones of the feet to regain normal position is illustrated here. It combines a callous remover, arch support, and heel leveler. Overlapping pockets are provided into which are put thin rubber inserts. This accessory is made in two styles for building up the heel, one having the inserts on the outside edge and the other on the inside. The support itself is made of smooth-surfaced sole leather, and the pockets permit the insertion of as many rubber wedges as may be necessary to raise the arch of the wearer to the height required for comfort. The support is pliable and weighs very little. It is adjustable to forty-one different positions and shapes to meet the more usual requirements. (Wizard Foot Appliance Co., St. Louis, Missouri.)

THE "STUDINGTON" TRENCHER.

The need of the army officer for a coat that will meet the requirements of trench life and combine in one garment protection against rain and cold, has resulted in various types of coats being put on the market. One of English design is shown here. It is guaranteed by the makers to be wind and weather-proof and comprises three coats in one, namely, a waterproof, a great coat, and "British-warm." The outer coat is triple proofed; there is a removable interlining, and the checked wool lining has been made impervious to wet by a patent process of proofing that makes it at the same time porous and antiseptic. The coat has a duplex front so that it may be buttoned either way; the collar buttons closely up around the throat; turn-back cuffs fasten snugly around the wrists, and a buckled belt holds it in place at the waist. (Studd & Millington, Limited, 51 Conduit street, London, W. 1, England.)

A PNEUMATIC BOXING-GLOVE.

A new boxing-glove has been devised to meet the demand for one that will permit the boxer to develop the more scientific part of the boxing game, at the same time doing away with the chance for injury to the opponent and the brutality to which many people object in connection with boxing. The cover of this glove is made of durable soft California leather, with strongly stitched seams, and is fitted exactly to the hand. The thumb and the wrist-pad are stuffed in the usual manner, but in the back, over the knuckles, is inserted a bladder of best Para rubber, inflated before using and removed from the glove when not in use. The bladder is of special ribbed construction, with reinforcement strips insuring strength and durability. It allows the boxer to use his full strength in hitting, without harm to his opponent. This glove is being used with success in some of the army camps and Y. M. C. A. service buildings. (Alex. Taylor & Co., 26 East 42d street, New York City.)

NATHAN ARCH SUPPORT.

A recently patented arch support provides for the insertion of a shaped rubber pad under the metatarsal or forward arch of the foot. This support had been made before, chiefly on prescription orders, but the demand became great enough to justify putting it on the market. (Nathan Novelty Manufacturing Co., 84 Reade street, New York City)

TRAVEL NEEDS.

The necessities of women who travel are carefully considered by the outfitters, and the latest accessory is called the "Pullman" bag. It is made of rubberized silk in changeable colors and includes a removable rubberized inner case for toilet articles. The bag has a convenient carrying strap and closes with loops over crystal buttons. The size is 9½ by 6¼ inches, and the bag contains a mirror, comb, brushes for the hair, teeth and nails, facecloth and soap, hairpins, buttonhook, orangewood sticks, sandpaper manicure strips, and nail buffer.

The hot-water bottle illustrated is a dainty accessory in traveling. It is made of rubberized silk, of the best quality, in colors, and folds into a leather case of colored morocco having a silk lining. The case fastens with a snap and measures, when closed, only 8¾ by 4½ inches. It takes up very little room, therefore, in proportion to the convenience it offers those travelers who depend on the comfort a hot-water bottle gives. The "Pullman" bag and the rubberized silk hot-water bottle are offered by the same concern. (Mark Cross, 404 Fifth avenue, New York City.)

NOISELESS PLATEN AND RUBBER TWIRLER.

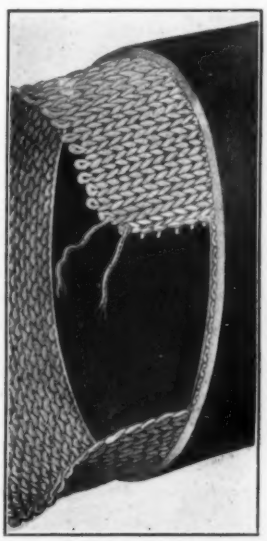
A noiseless typewriter platen is shown here. It comprises a central core of wood, over which is a cushion of soft rubber,

which, in turn, has outside a layer of harder rubber for the striking surface. The rubber typewriter-platen twirler is grooved, with a retaining lip on the inner edge. It is claimed that this device will retain its shape after use. (Speed Key Manufacturing Co., 90 West Broadway, New York City.)

THE PALMER CORD TUBE.

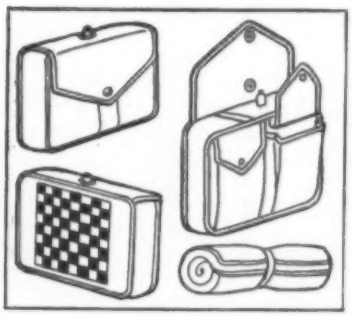
The salient feature of this inner tube is a special loop-locked cord fabric embedded in rubber, and designed to carry a portion of the strain on the casing.

The cord structure is knitted on special machines and formed on curves similar to those of the casing, thus eliminating the usual stretching at the tread and wrinkling at the rim, a difficulty common in ordinary tubes. The air tube proper is rubber riveted through, and molded over the cords on similar curves, while the lock-loop-structure of the fabric allows flexible adjustment to the contour changes of the casing when subjected to varying loads and inequalities of the road. The tubes are made in standard sizes from 30 by 3 to 37 by 3 inches, fully guaranteed against imperfections in material and workmanship. (Palmer Tire & Rubber Co., St. Joseph, Michigan.)



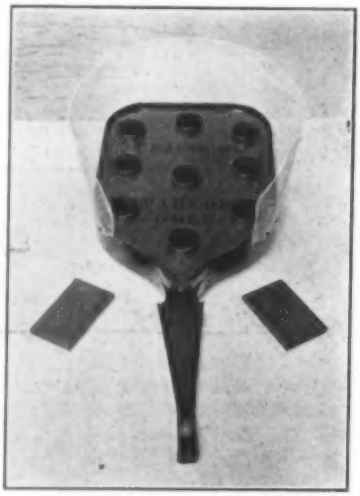
THE "VICTORY" PNEUMATIC PILLOW.

Four views of an unusual development of the pneumatic pillow are shown in the accompanying sketches. The pillow proper is a rubber case of strongly reinforced vulcanized fabric, approximately twelve by fifteen by two and one-half inches in height when inflated. There is also a washable outer case of heavy duck, with the edges securely bound with tape. The pillow, uninflated, is put into this case, with the nickel-plated screw-valve protruding through the eyelet provided for it. On one side of the case is a checker-board with black squares; on the other, two pockets with flaps fastened down by snaps, over which the flap of the case is held in place by the same means. Many little articles may be kept in the pockets, using the other side for a pillow or writing desk. Tape is attached for tying in a roll when packed. The case is tan color. (Victory Pillow Co., 118 East 28th street, New York City.)



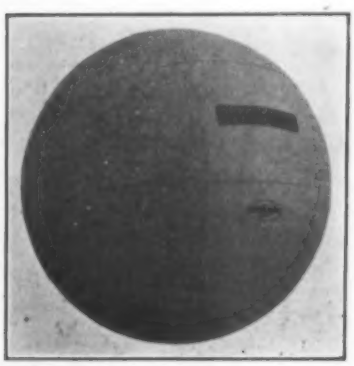
PARLOR GOLF.

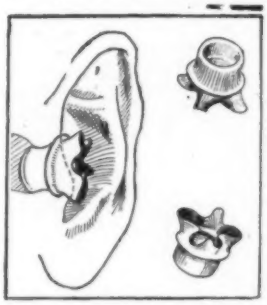
A new game recently patented, which employs a solid rubber ball and stands on rubber-tipped feet, is shown here. An inclined driveway for the ball, with a spring at one end, leads to the field board which has nine "holes." (Robert A. Peacock, Delaware City, Delaware.)



CAGE BALL—A NEW GAME.

The demand for healthy pastimes in our cantonments and other places where large numbers of people gather led to the devising of a game in which any number may take part and one which is particularly adapted to use by large crowds. It has been thoroughly tried out in all kinds of weather and proved to be an all-year game. Dr. Emmett D. Angell, coach of the football and athletic teams at the Great Lakes Training Station near Chicago, is the inventor of the game. It is played with a ball thirty inches in diameter, made of the best-quality canvas, which is waterproofed by a special process, and has the seams reinforced by white leather. The opening of the ball is strengthened with a piece of pebble-grained leather, and is laced with a rawhide thong. The seams are stitched with strong, waxed, linen thread. Inside is a rubber bladder made of heavy, first-class gum, When the game is played out of doors the size of the field is 100 feet wide by 120 feet long between goals, with ten feet additional playing space beyond each goal. The rope cages are 18 inches deep, four feet wide, and from 20 to 40 feet long. The corners of the ends are fastened to cross-pieces on regulation uprights, with ten feet of space from the ground or floor to the upper edge, and five feet between each end and the uprights. As many as 2,000 have played the game on a field of the size described. The object is to get the ball into the opponents' cage by batting, punching, or throwing. (Thos. E. Wilson & Co., 701 North Sangamon street, Chicago, Illinois.)



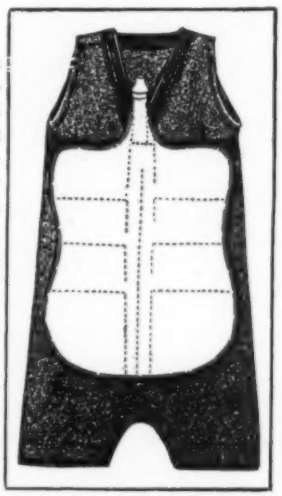


RUBBER EAR-STOPPERS.

A new device made of soft rubber is shown here. It is intended for use by soldiers at the front to lessen the shock to the ears caused by heavy explosions without wholly preventing hearing. It is also used by bathers, or whenever it is desirable to close the ears partially, but not too tightly. The stoppers come in two sizes. (Ideal Rubber Co., 203 West 50th street, Los Angeles, California.)

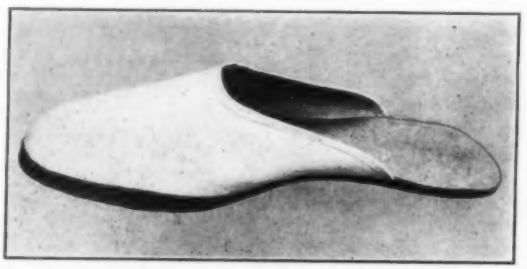
NON-SINKABLE BATHING SUIT.

A bathing suit of novel design includes an inflatable portion inside the front made of rubberized material. A nozzle protruding at the neck opening gives an opportunity to inflate the bladder after the bather enters the water. When enough air has been blown in the valve automatically closes. The suit will support, it is claimed, a weight of 300 pounds. The cut shows the wrong side of the garment. Outwardly, it has the appearance of an ordinary bathing suit. It is made for both men and women. (Blum Brothers, Bavaria Knitting Mills, 119 South Market street, Chicago, Illinois.)



A RUBBER-SOLED ARMY MULE—KICKLESS.

When Uncle Sam begins to prepare an outfit for his soldiers he provides some comforts as well as practical necessities. The new army mule, made of first-class duck bound around the edge with tape, has a composition rubber sole securely vulcanized to the upper. The inner sole united with it is of shredded cork. (United States Army Medical Supply Depot, New York City.)



The Obituary Record.

INVENTOR OF MANY RUBBER SPECIALTIES.

CHARLES J. BAILEY, the well-known inventor of a large number of rubber specialties, and proprietor of the oldest exclusive retail rubber store in Boston, died at his home in Newton, Massachusetts, April 27, 1918, aged 69 years.

CHARLES J. BAILEY.

Mr. Bailey was born in Jackson, Michigan, where his father was one of the pioneer settlers Until the age of 18, his home was a log cabin, and the schoolhouse where he received his education was of similar construction. His first business experience was in a general store at Paw Paw, Michigan, but at the age of 21 he went to Lynn, Massachusetts, opening a dry goods store in partnership with his brother-in-law, the firm being Clapp & Bailey. From this beginning was evolved a lace remnant business, which grew to such proportions that the firm moved to Boston, where in number of packages it became the largest express shipper in the United States. A factory was established in England, and branch houses in London, Paris, and Montreal.

Meanwhile, Mr. Bailey invented a flesh brush of rubber, which met with a good sale, and this led to a long line of inventions in rubber, the most notable being the "Bailey Tread," a non-skid for motor tires which was made under license by nearly all of the tire manufacturers. Other inventions included rubber heels and soles, footwear, a variety of toys and toilet articles.

As the lace trade diminished, he bought out his partner and enlarged his rubber jobbing and retail business, establishing a rubber store in the Boston retail district in 1889. He had a large wholesale business in his specialties, both here and abroad, the result of efficient advertising and up-to-date business ideas.

Although not in robust health for some time, he was daily at his store and managed his extensive business until about three weeks prior to his death.

One of the first members of the Rubber Club, Mr. Bailey was known to all of the New England trade and, through his inventions, to many manufacturers here and abroad. He was always cheerful and alert and remained in appearance and action a young man to the end. In his line, which was of his own creation, he was a notable figure, and as such, his loss is keenly felt. He leaves his widow, one son, and three daughters.

MANUFACTURED THE "JENKINS" PACKING.

Charles Jenkins, for many years identified with the valve manufacturing firm of Jenkins Brothers, Boston, Massachusetts, and New York City, and the Jenkins Rubber Co., Elizabeth, New Jersey, died at his summer home in Winthrop, Massachusetts, March 1, 1918, aged 74 years. He was born and educated in Boston, and entered the above firm in 1872, four years later joining the Tuttle Rubber Co., which was established at Holyoke, Massachusetts, to manufacture packings and washers for the Jenkins valves, this being its sole output. On the death of John H. Tuttle in 1894, the business was purchased by Jenkins Brothers, and a corporation, The Jenkins Rubber Co., was formed, with Alfred B. Jenkins as president and Charles Jenkins, treasurer. Later this factory was found too small for the growing business, and the concern removed to Elizabeth, New Jersey, erecting a larger building, which was later doubled in size. In 1896 Charles Jenkins sold out his interest to his brother, and has since devoted his time to real estate interests. He is survived by his widow.

LONG A LEADER IN RUBBER MANUFACTURING.

Allen L. Comstock, for many years identified with the rubber manufacturing industry, died early last month at Pasadena, California, and his body was brought East for interment, the funeral services being held in his old home in Uncasville, Connecticut, May 17, 1918.

Mr. Comstock was born in Waterford, Connecticut, May 19, 1850, and received a common school education. His first business experience began about 1858 or 1859 with the Odorless Rubber Co., Middletown, Connecticut. He soon left to enter the employ of the American Rubber Co., Cambridge, Massachusetts, and rose steadily until he reached the position of superintendent, having seen this concern grow in capacity and importance, in the development of which he had a large share.

After more than 40 years in active service, Mr. Comstock retired and made his home at the Hotel Westminster, Boston, spending much of his time at the Algonquin Club and at the clubhouse of the Boston Athletic Association.

Besides the above-named clubs, he was a member of The Rubber Association of America, and had taken high degrees in Masonic orders.

Mr. Comstock's winters during the last few years had been spent in California. He never married, and his nearest relatives are a brother and sister living at Uncasville, Connecticut.

Personally Mr. Comstock was self-contained, friendly in a quiet way, and a man of strong convictions and marked executive ability. Of the three lieutenants of the late Robert D. Evans–Paine, Eustis and Comstock, he was for years the least known, yet it was his ability as a manufacturer that brought the American Rubber Co. up from a second-rate concern to one whose profits were viewed with astonishment and incredulity by competitors. After his retirement from active service, his search for health and battle for life was conducted quietly, persistently, but withal cheerfully, and that the Great Enemy conquered was not his fault.

A RUBBER STAMP MANUFACTURER.

Taylor S. Buck, who succumbed to a three-day attack of pneumonia on February 25, 1918, leaving his widow and three sons, was president of the T. S. Buck Manufacturing Co., manufacturer of rubber stamps, 537 Broadway, New York City. Mr. Buck was seventy years of age and had been in the business nearly fifty years. He was the second to establish a rubber stamp business in the West, at Davenport, Iowa. Later, after coming to New York, he established a branch house in London in 1895. He was the owner of many patents in the United States, Canada, Great Britain, Germany, France, and Italy, and at one time two Canadian manufacturers were making his stamps under royalty. Prominent among his inventions are the wing number-

ing stamp illustrated in THE INDIA RUBBER WORLD for February 1, 1918, a check protector, cushion mount, dial dating stamp, and flexible hand stamp.

The business of the company is now being conducted by Mr. Buck's three sons—Howard T., Frank L., and Wallace A. Buck.

RUBBER DEPARTMENT MANAGER OF AN ENGLISH COMPANY.

Robert Stables, for many years manager of the rubber department of the India Rubber, Gutta Percha & Telegraph Works Co., Limited, Silvertown, England, died at his home in that place on April 9, 1918, aged 68 years. He had been with the company for 43 years previous to his retirement less than three years ago. He had a large acquaintance in the trade, and his funeral was attended by many prominent members of the staff of the company.

A PROMINENT PHYSICIAN AND RUBBER MAN

Dr. William James Hennessy, Palmyra's oldest and most prominent physician, who died April 26, began the study of medicine in the office of the late Dr. Charles M. Kingman in Palmyra, afterward matriculating at Syracuse University. He conducted a successful practice for forty years in Palmyra and was a valued member of the Wayne County Medical Association, being considered an authority on many points in medical science.

Prominent in Masonic circles as a member of Palmyra Lodge, F. & A. M., Eagle Chapter, Royal Arch Masons, Zenobia Commandery K. T., Damascus Temple and Nobles of the Mystic Shrine, he held office in each division of the Orders. Dr. Hennessy was influential in town and village affairs, and served as president of the village besides holding many other offices of municipal trust.

He was secretary and treasurer of the Crandall Packing Co., of Palmyra, New York, in which he took active interest. Influential in politics he was Republican County Committeeman for a long time and was once connected with the State Board of Pensions.

He is survived by his widow, J. Jenner Hennessy, United States Naval Reserves, and vice-president of the Crandall Packing Co., and two daughters.

ARMY AND NAVY AWARDS.

NAVY SUPPLY AWARDS.

THE following awards have been made during the past month for furnishing navy supplies:

HOSE.—1,000 feet, $462.50, Goodyear Tire & Rubber Co. 1,000 feet steam, $350, Goodyear Tire & Rubber Co.

INSULATED CABLE.—2,300 feet, $477.62, United States Rubber Co.

RUBBER AIR HOSE.—15,000 feet, $4,440, Bowers Rubber Works.

RUBBER COVERED WIRE.—$7,883.70, Bishop Gutta Percha Co.

PANAMA CANAL AWARDS.

The following awards have been made during the past month by the general purchasing officer of the Panama Canal:

INNER TUBES.—48, $18, The B. F. Goodrich Co. 72, 28 by 3-inch, $140.40, Goodyear Tire & Rubber Co. 200, 30 by 3½-inch, $420; 6, 35 by 5-inch, $28.20; total, $448.20, Howe Rubber Co.

RUBBER HOSE.—6 lengths, $309, The Republic Rubber Co.

TIRES.—8, 36 by 4-inch, $295.20; 16, 36 by 6-inch, $913.60; total, $1,208.80, The B. F. Goodrich Co.

ARMY MEDICAL SUPPLIES.

The following awards have been made during the past month by the surgeon general of the Army:

GAS MASK PARTS.—200,000 facepieces, $270,000, The B. F. Goodrich Co. 7,000 linear yards rubberized facepiece fabrics, $6,510; 3,000 linear yards rubberized facepiece fabrics, $1,800; total, $8,310, Goodyear Tire & Rubber Co., Akron, Ohio. 104,900 linear yards rubberized binder fabrics, $62,940, Goodyear Tire & Rubber Co., Akron, Ohio. 245,100 linear yards rubberized face fabrics, $227,943, Goodyear Tire & Rubber Co., Akron, Ohio. 70,000 linear yards rubberized binder fabrics, $35,000, Okenyare Co., Inc., New York City. 30,000 yards rubberized face fabric, $30,000, Plymouth Rubber Co., Canton, Massachusetts. 10,000 yards rubberized binder fabric, $6,000, Plymouth Rubber Co., Canton, Massachusetts. 75,000 linear yards binder fabric, $23,250, The B. F. Goodrich Co., Akron, Ohio. 175,000 linear yards rubberized face fabrics, $122,500, The B. F. Goodrich Co., Akron, Ohio. 100,000 feet flexible hose, $55,000, Continental Rubber Works, Erie, Pennsylvania. 1,000,000 flutter valves, $70,000; 150,000 flutter valves, $18,000; total, $88,000, Goodyear Tire & Rubber Co., Akron, Ohio. 200,000 facepieces, $254,000, Goodyear Tire & Rubber Co., Akron, Ohio.

RUBBER CUSHIONS.—1,500, $1,575, Davidson Rubber Co., Boston, Massachusetts. 4,450 small, $6,675, Doane Rubber Co., New York City. 2,605, $3,126, Hodgman Rubber Co., Tuckahoe, New York.

RUBBER FOUNTAIN SYRINGES.—5,750, $5,223.30, Hodgman Rubber Co., Tuckahoe, New York.

RUBBER GLOVES.—8,400 pairs, $1,932; 8,700 pairs, $2,349; 8,400 pairs, $2,856; total, $7,137, Henry Livezey, New York City, 3,000 pairs, $790; 3,400 pairs, medium, $963.33; 3,000 pairs, heavy, $1,120; total, $2,873.33, Faultless Rubber Co., Ashland, Ohio. 1,700 pairs, light, $401.37; 1,600 pairs, medium, $444.40; 1,700 pairs, heavy, $578.44; total, $1,424.21, Canfield Rubber Co., New York City. 575 dozen pairs, $1,592.75; 575 dozen pairs, $2,070; 575 dozen pairs, $2,587.50; total, $6,250.25, United States Rubber Co., New York City.

RUBBER HOT WATER BAGS.—7,535, 2-quart, $5,274.50, Hodgman Rubber Co., Tuckahoe, New York.

RUBBER ICE BAGS.—1,975, $1,540.50, Doane Rubber Co., New York City. 166-2/3 dozen, $1,033.33, Tyer Rubber Co., Andover, Massachusetts.

RUBBER POWDER SPRINKLERS.—20 5/6 dozen, $49.48, United States Rubber Co., New York City.

RUBBER SHEETING.—20,000 yards, $14,600, Archer Rubber Co., New York City.

RUBBER STOMACH TUBES.—25 dozen, $175, Doane Rubber Co., New York City.

RUBBER TIPS FOR CRUTCHES.—4,450, $75.65; 4,475, $102.92; 4,450, $111.25; total, $1,323.15, Tyer Rubber Co., Andover, Massachusetts.

SURGICAL CUSHIONS.—3,945, $11,440.50, United States Rubber Co., New York City.

TUBES.—3,000 hard rubber, $850, United States Rubber Co., St. Louis, Missouri.

RUBBER TUBING—21,000 feet, $133,864; 4,000 feet, $64.78; total, $133,928.78, Faultless Rubber Co., Ashland, Ohio. 24,650 yards drainage tubing, $4,105.75, Faultless Rubber Co., Ashland, Ohio.

JUDICIAL DECISIONS.

LEMMON *v.* EAST PALESTINE RUBBER CO..—Supreme Court of Pennsylvania, January 7, 1918. B. W. Lemmon purchased from the rubber company 200 shares of its capital stock at $25 per share, through the treasurer of the company, who gave a written contract whereby the company agreed to supply a purchaser for the stocks at a profit of $2.50 per share. The company, did not, when requested, supply a buyer for the stock and Lemmon brought suit. The company defended its action on the ground that the treasurer had no right to make such a contract and that whereas the sale was valid, the clause regard-

ing the obtaining of a purchaser was not. The court decided against the company. (Atlantic Reporter, Volume 103, page 510.)

GOODYEAR TIRE & RUBBER CO., INC., *v.* UNITED MOTOR CAR AND SUPPLY CO., INC.—Court of Chancery of New Jersey, March 5, 1918. Abraham Rudensey, an attorney, made application for an allowance for compensation as counsel to the company prior to the appointment of a receiver. It was decided that payment of $75 was sufficient to cover the fee for services given directly to the company and that no allowance was to be made for counsel to the stockholders themselves. (Atlantic Reporter, Volume 103, page 471.)

ROBINSON ET AL *v.* TUBULAR WOVEN FABRIC CO.—District Court, District of Rhode Island, March 31, 1917. The Osbourn patent, No. 625,806, for a flexible electrical conduit, covers a structure which shows invention over the prior art only in that it retains a tubular form with sufficient circumferential rigidity to resist collapse under the ordinary condition of its use, and that this rigidity is due in a substantial sense to the helical member in the woven fabric of which it is composed. So construed, the patent was held not infringed by a structure of soft woven fabric, easily collapsible, to which rigidity is imparted by passing it through a bath of water-resisting compounds. (Federal Reporter, Volume 248, page 526.)

MURPHY *v.* NATIONAL RUBBER CO. OF N. Y.—Supreme Court, Appellate Division, First Department, April 9, 1918. Mrs. Murphy subscribed for 50 shares of the stock of the rubber company, the subscription agreement reading in part as follows:

> It is also understood . . . . that I may, at my option, visit the plant at Pottstown, Pennsylvania, at any time within thirty days from date, and if not satisfied, then I am to have the full purchase price of shares subscribed to herein returned to me with six per cent interest.

Without visiting the plant at Pottstown she elected to withdraw her subscription and have the $250 repaid her. A decision in her favor was reversed by the Supreme Court. (New York Supplement, Volume 170, page 42.)

CUSTOMS APPRAISER'S DECISIONS.

HYDRAULIC HOSE.—The Mineralized Rubber Co. imported 2 ½-inch fire hose composed of flax canvas which was classified as manufacture of flax at 35 per cent ad valorem. The protest claiming that it was dutiable under paragraph 274 of the Tariff Act of 1913 at 7 cents per pound was upheld. (Treasury Decisions, Volume 34, No. 17, April 25, 1918.)

JELUTONG.—In the protest of C. H. Langley, jelutong, classified as a non-enumerated manufactured article, was entitled to be entered free of duty as india rubber.

ELASTIC BRAIDS.—Calhoun, Robbins & Co. et al. *v.* United States. United States Court of Customs Appeals, April 30, 1918. The decision of the Board of General Appraisers overruling a protest against the collector's classification of cotton and india rubber hat elastics and silk and india rubber sleeve and garter elastics as braids, under paragraph 358, Tariff Act of 1913, claiming that the cotton goods were classifiable as "fabrics with fast edges not exceeding 12 inches in width . . . of cotton . . . . and india rubber" under paragraph 262, and the silk goods to be dutiable as "webbings . . . . of which silk and india rubber are the component materials of chief value," under paragraph 316, is affirmed. (Treasury Decisions, Volume 34, No. 20, May 16, 1918.)

WEBBINGS—ELASTIC.—Steinhardt Bros. *v.* United States. United States Court of Customs Appeals, April 30, 1918. In a shipment consisting of elastic braids composed of silk and india rubber, and elastic webbing composed of artificial silk, cotton, and india rubber, where the artificial silk and india rubber combined were the component materials of chief value, the artificial silk material was assessed for duty under paragraph 319, Tariff Act of 1913. The importer protested that these were properly dutiable under paragraph 262 of the same act.

Paragraph 319 covers beltings—fabrics composed of yarns, filaments or fibers of artificial silks and india rubber, while paragraph 262 covers fabrics with fast edges, not exceeding 12 inches in width, all of the foregoing made of cotton or other vegetable fiber, or of which cotton or other vegetable fiber is the component material of chief value, or of cotton or other vegetable fiber and india rubber. It was held that artificial silk was not included in the vegetable fiber and that the goods had been properly assessed under paragraph 319 at 60 per cent ad valorem. (Treasury Decisions, Volume 34, No. 20, May 16, 1918.)

THE EDITOR'S BOOK TABLE.

TIRE MAKING AND MERCHANDISING. BY F. R. GOODELL. U. P. C. Book Co., Inc., New York City. (Leatherette binding, small octavo, 222 pages.)

F. R. GOODELL, eastern sales manager of the Converse Rubber Shoe Co.'s tire department, New York City, has brought within a compact volume a large amount of tire lore, much of which has before been available only in automobile, hardware and rubber trade journals, together with points founded on actual experience in his own and in other tire manufacturing establishments. Not only is the manufacture described and cost analyzed, but the questions of marketing, the considerations of prices, the methods of advertising, sales, adjustments and other matters of interest to automobile and tire dealers are given detailed attention. Some statistical tables are printed, also a list of tire and tube manufacturers, and an interesting chapter on "Tire Lingo," a dictionary of trade terms in the industry.

A WONDER BOOK OF RUBBER. THE B. F. GOODRICH RUBBER CO., Akron, Ohio. (Small octavo, board covers, 72 pages, illustrated.)

This little book, written in the sales training department of the above-named company, is concisely worded in popular style, giving in brief chapters many facts and phases of the rubber industry, beginning with the sources of the material and proceeding through the manipulations and processes of manufacture of the leading lines of rubber goods. The style is entertaining, and while one chapter is devoted to the importance of the Goodrich establishment, the publication cannot rightly be classed as an advertisement, but more as a popular handbook. Some fine halftones of familiar tapping, curing and mill scenes are shown, and a portrait of the late Dr. B. F. Goodrich is printed as a frontispiece.

WOOD AND OTHER ORGANIC STRUCTURAL MATERIALS. BY Charles Henry Snow, C.E., Sc.D. McGraw-Hill Book Co., Inc., New York City. (Cloth, octavo, 478 pages.)

This work, evidently published as a text-book for higher institutions of learning, shows a great amount of research and intensive study. The book is mainly devoted to the uses of wood aud its value as a structural material, and the various trees are classified and their physical characteristic and chemical properties described. The dangers of wood as a building material, because of combustibility, are considered, the ravages of pests explained, means for protection given, and the uses of paints, glues, and preservatives are discussed.

A chapter treats of india rubber as a structural material, also, in which is included some account of the sources, preparation, properties, and uses of rubber. This chapter was evidently written or carefully edited by an authority on rubber, and as the author in his preface tenders to a number of prominent professional men his thanks for assistance in writing the book, it is reasonable to assume that Dr. Lothar E. Weber, of the Boston India Rubber Laboratory, mentioned in the list, is to be credited with the measure of exactness shown in this chapter. The author acknowledges THE INDIA RUBBER WORLD as a source of informa-

tion, and quotes from a book written by the Editor of this journal.

NEW TRADE PUBLICATIONS.

THE THERMOID RUBBER CO., TRENTON, NEW JERSEY, IS SENDing to garage owners and motor repairers a handsome booklet explaining its campaign for advertising Thermoid brake lining during the present season. It has instituted a brake inspection movement which brings car owners to the repairers, and here the brakes, if found faulty, can be refitted with fresh linings. The booklet explains what the company is doing in national advertising, in furnishing cuts and electrotype advertisements for local dealers, also window cards, posters, seals, etc. The book is a fine specimen of trade advertising.

* * *

THE VOORHEES RUBBER MANUFACTURING CO., JERSEY CITY, New Jersey, is distributing a well-printed booklet describing its Rub-Steel pump valve, which is familiar to the trade. Text and illustrations, some of the latter in colors, give the reader an adequate idea of the advantages of these valves, and a large part of the book is devoted to photo-reproduction of letters from valve users. Some "Pump Parables" are interesting practical hints, and a list of jobbers who carry the valves is included in the publication.

* * *

W. F. GAMMETER, CADIZ, OHIO, SENDS OUT A NEAT BOOKLET, descriptive of the Universal calender shells of his manufacture. The various sizes are listed with dimensions, weights, etc., and directions are given for inserting the aprons. There are also full details of the tire machine drums, belting shells, tube splicers and other specialties for which this house is noted.

* * *

THE CUTLER-HAMMER MANUFACTURING CO., MILWAUKEE, Wisconsin, has just issued a four-page, two-colored envelope folder, publication 232, showing several applications of C-H push-button porcelain sockets with shock-proof shell. The pendant type is suited for factories, storehouses and basements, and due to push-button mechanism requires only one hand to operate. A small two-color envelope folder from the same company, publication 242, illustrates and describes both single and two-circuit brass shell and all-porcelain switches. This folder is issued for general distribution and for jobbers' use, when imprinted with the jobber's name. Another folder put out by this company, Publication 233, illustrates and describes C-H electric industrial stoves for laboratories and industrial plants. Details of construction are given and sizes, wattage and other data.

* * *

THE MILLER RUBBER CO., AKRON, OHIO, IN ARRANGING FOR an enlarged advertising campaign, has completed a field investigation of the tire business of the entire country. A blank was sent out to a long list of tire dealers, and 25,349 answers were received. The results have been compiled, checked and charted, and published in a large and handsome book, bound in heavy art cover stock and printed in colors on heavy paper, each of the 24 pages measuring 11 by 14 inches. The book gives several graphic charts and diagrams, besides the details of the Miller tire advertising for this season, and contains much matter of interest to tire dealers in general, and to the company's customers in particular.

* * *

A BULKY ENVELOPE, 9 BY 17 INCHES, WITH CONTENTS TOO HEAVY to be folded by the carrier, is sufficiently distinctive to demand attention when received in the mail. Such an envelop containing an announcement of the details of the $100,000 advertising campaign of the Davol Rubber Co., Providence, Rhode Island, is being sent to druggists throughout the country. When the book is opened it is found that each page measures 16 by 18 inches, is printed in two or three colors, and describes one phase of the composite plan, which includes cut-outs, window pasters, borders, decalcomania, etc., for window display, details of a prize window dressing contest, lantern slides, cuts for local dealers' advertising, and books on practical selling and on the uses of water bottles and kindred rubber goods. As a specimen of trade publicity, the book is most commendable and will undoubtedly prove very effective.

RUBBER TRADE INQUIRIES.

THE inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The editor is therefore glad to have those interested communicate with him.

(411.) A correspondent requests the names of manufacturers of dies for cutting standard rubber test pieces.

(412.) An inquiry has been received for the names of wholesale dealers in second-hand tires.

(413.) A manufacturers' association requests the names of American makers of machinery for manufacturing rubber sponges.

(414.) A South American correspondent asks for the names of manufacturers of the round rubber heels used in Chile.

(415.) A Chilean correspondent desires to secure the agency on a commission basis for a good brand of rubber heels, preferably of the round type used in that country.

(416.) A dealer requests the name of a manufacturer of molds for surgeons' rubber gloves.

(417.) A manufacturer inquires where he can obtain tire bead wire.

(418.) An inquiry has been received for the names of manufacturers of burlap tire-wrapping machines.

(419.) A subscriber asks for the names of manufacturers of paper tire-wrapping machines.

(420.) A manufacturer requests information as to what may be used as a substitute for soap in coating metal molds.

(421.) Inquiry is made for the name of the maker of a compounding ingredient known as Metronite.

(422.) A reader requests the address of dealers in deodorized pine tar.

(423.) A reader asks for the address of a firm dealing in powdered or ground glass.

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

Addresses may be obtained from the Bureau of Foreign and Domestic Commerce or its district or cooperative offices. Request for each should be on a separate sheet, and state number.

(26,800.) A wholesale importer in Chile, who has a representative in this country, is in the market for caustic soda, soda ash, paraffin wax, cottonseed oil and osnaburgs.

(26,839.) A member of a firm in South Africa, who will be in the United States for about two months, desires to secure an agency for the sale of chemicals and rubber goods.

(26,855.) A firm in France desires to secure an agency for the sale of pneumatic tires and solid rubber tires for heavy vehicles.

(26,899.) An agency is desired by a man in Algeria for the sale of automobile tires.

(26,960.) An agency is desired by a business man in India for the sale of automobile tires.

A THIRD EDITION OF THE 118-PAGE BOOKLET ENTITLED "WASHington's Nine Months at War," by Raymond B. Price, vice-president, Development Department, United States Rubber Co., has been printed for distribution by the Patriotic Education Society, Inc., Washington, District of Columbia. Mr. Price claims that great efforts have brought only disappointing results because of poor organization. Coordination he terms the missing link, labor the unsolved problem.

News of the American Rubber Trade.

FIRST ANNUAL MEETING OF GILLETTE RUBBER CO.

THE stockholders of the Gillette Rubber Co., 1834 Broadway, New York City, which has its factory at Eau Claire, Wisconsin, held its first annual meeting at the Eau Claire Club Monday afternoon, April 22, nearly 200 being present.

The following officers, directors, and executives were elected and appointed: directors—C. G. Ruth, R. B. Gillette, S. P. Woodward, N. J. Whelan, A. E. Burr, and F. C. Herman; S. P. Woodward, president and treasurer; R. B. Gillette, vice-president and general manager; Edward Hutchins and C. G. Race, vice-presidents; S. H. Smith, general superintendent; R. W. Hutchins, mechanical engineer; C. H. Hopson, purchasing agent and assistant secretary; C. H. Olson, auditor and assistant treasurer; K. H. Stubenvol, chemist; H. L. Cook, sales manager; C. G. Race, western district manager; C. O. Lund, southern district manager; W. H. Putnam, New England district manager; S. E. Bostwick, northwestern district manager.

The annual report, presented by President S. P. Woodward, gives the following figures: total investment, approximately $1,434,520.25; appraisal of plant and equipment, $507,607.14; quick current assets, in addition to above, $988,749.42; cash in banks, $77,427.60; invested in raw materials, inventoried at cost, $478,664.62; accounts receivable, $353,619.46; total liabilities April 1, 1917, being paid promptly when due, and a considerable amount already liquidated, $177,740.89.

The first seven months of operation show a surplus account of $119,601.63. Total shipments for March amounted to $186,000, the largest for any month up to that time. Production now averages 500 tires a day, but with the facilities provided by the new boiler plant being completed, it is expected that the output will increase to 750 tires and 1,000 tubes a day.

The company now employs about 300 men and the monthly payroll averages $20,000.

ANNUAL REPORT OF THE WESTINGHOUSE COMPANY.

The Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, has issued its annual report for the year ended March 31, 1918. The gross earnings show sales billed amounting to $95,735,406.75, with a net manufacturing profit of $15,509,469.84, while the net income available for dividends and other purposes, after deducting interest, royalties, etc., amounts to $15,405,680.89. The gross surplus amounts to $33,510,979.55.

In addition to the regular quarterly dividends at the rate of 7 per cent per annum on the preferred and common stocks, a special Red Cross dividend was paid, making a total of $5,610,848.11 for all dividends paid during the year.

The holdings of the company in The British Westinghouse Electric & Manufacturing Co., Limited, were disposed of to a syndicate formed in London, England (Electric Holdings, Limited), and payment therefor has been received in 5 per cent prior lien debenture bonds maturing in ten years, secured by the pledge of the securities sold and other additional collateral. Book values remain unchanged and the balance sheet is therefore unaffected.

Large increases in inventories were made necessary by the unusual volume of business transacted, and the company added to the total of its outstanding notes payable by $12,282,301, the total amount of notes payable outstanding as of March 31, 1918, being $30,186,051. This includes $15,000,000 one-year notes and $2,433,551 on account of Liberty Loan Bonds subscribed for by the company and its employes.

Although the New England Westinghouse Co. suffered a loss of $5,000,000 due to cancellation of further deliveries on Russian rifle contracts, it was enabled to utilize its organization in the filling of government orders received about that time for heavy Browning machine guns, on which deliveries begun in April are now in advance of the schedule fixed by the contract.

The latest development of the company's works is the plant at South Philadelphia, Pennsylvania, devoted entirely to the production of ship propulsion machinery for the Navy and the merchant fleet. A little more than a year ago the 500-acre site was plowed fields; to-day it contains seven large buildings giving employment to 2,500 people. These buildings contain a floor space of over 600,000 square feet and include a pattern storage shop, foundry, forge shop, power-house, erecting shop, and two machine shops. The location is Essington, about nine miles from Philadelphia, on the Delaware river. Transportation is afforded by two steam railroads and one electric line.

DIVIDENDS.

The Ajax Rubber Co., Inc., 1796 Broadway, New York City, has declared a quarterly dividend of $1.50 a share, payable June 15 to stockholders of record May 31, 1918.

The Amazon Rubber Co., Akron, Ohio, recently declared a quarterly dividend of one and one-half per cent on its common stock.

E. I. du Pont de Nemours & Co., Wilmington, Delaware, declared a dividend of two per cent on its common stock, for the benefit of the Second Red Cross War Fund. It was payable May 18 to stockholders of record May 8, 1918, and totaled $1,177,084. As du Pont stockholders are scattered all over the country, every section was expected to benefit by the dividend, although a large proportion of the stock, naturally, is owned in the East.

The General Electric Co., Schenectady, New York, has declared its regular quarterly dividend of $2 a share and its regular semi-annual stock dividend of 2 per cent, both payable July 15 to stock of record June 8, 1918.

The Goodyear Tire & Rubber Co., Akron, Ohio, has declared its regular quarterly dividend of three per cent, payable June 1, 1918.

The Pennsylvania Rubber Co., Jeannette, Pennsylvania, has declared its regular quarterly dividend of one and three-quarters per cent on preferred and one and one-half per cent on common stock, payable June 29 to stockholders of record June 15, 1918.

The Plymouth Rubber Co., Canton, Massachusetts, declared a quarterly dividend of one and three-quarters per cent on its preferred stock, payable June 1 to stock of record May 24, 1918.

The Republic Rubber Corp., New York City, has declared a quarterly dividend of one and three-quarters per cent on its preferred stock, payable June 1, 1918.

RUBBER COMPANY SHARE QUOTATIONS.

The following market quotations of shares of rubber manufacturing companies on May 25 are furnished by John Burnham & Co., 115 Broadway, New York City, and 41 South La Salle street, Chicago, Illinois:

	Bid.	Asked.
Ajax Rubber Co. (new)	58	60
Firestone Tire & Rubber Co., common	90	93
Firestone Tire & Rubber Co., preferred	94	95
The B. F. Goodrich Co., Common	43⅞	45
The B. F. Goodrich Co., preferred	99	100
Goodyear Tire & Rubber Co., common	141	144
Goodyear Tire & Rubber Co., preferred	96	98
Kelly-Springfield Tire Co., common	45	46
Kelly-Springfield Tire Co., preferred	76	87
Miller Rubber Co., common	100	103
Miller Rubber Co., preferred	94	95
Portage Rubber Co.	102	105
Swinehart Tire & Rubber Co.	36	..
United States Rubber Co., common	57	58
United States Rubber Co., preferred	103¾	106½

NEW INCORPORATIONS.

American Fabric Products Co., Inc., April 17 (New York), $10,000. N. Levy, M. Krever and G. C. Woolf—all of 5 Beekman street, New York City. Principal office, New York City. To manufacture rubberized fabrics.

Atlantic Drug Co., Inc., March 21 (New York), $100,000. J. M. Traster, 2 East 107th street, B. B. Myers, 546 West 165th street—both in New York City, and H. F. Vortkamp, 619 Avenue C, Brooklyn, New York. Principal office, New York City. To manufacture drugs and rubber goods.

Atlantic Tire Service, Inc., March 5 (New York), $10,000. A. Foshay, A. G. Thaanum—both of 120 Broadway, and A. Skillman, 986 Bathgate avenue—both in New York City. Principal office, New York City. Automobile tire service station.

Black Hawk Tire & Rubber Co., April 22 (Iowa), $1,000,000. J. F. Griffin, J. C. Kirby, J. J. O'Malley and I. V. McClean—all of Des Moines, Iowa. To manufacture, buy and sell motor vehicle tires, casings, tubings and tire accessories.

Stewart R. Browne Manufacturing Co., Inc., May 6 (New York), $25,000. S. R. Browne, E. P. Browne—both of 207 West 118th street, New York City, and G. B. Smith, Montclair, New Jersey. Principal office, New York City. To manufacture hydraulic packing, rubber, leather goods, etc.

Bucyrus Tire & Rubber Co., Inc., March 7 (New York) $200,000. C. O. Henderson, P. H. Heater—both of Bucyrus, Ohio, and G. C. Riley, Buffalo, New York. Principal office, Buffalo, New York. To manufacture tires and rubber goods.

Central Park Tire Co., Inc., March 7 (New York), $5,000. A. Kaiser, 101 West 80th street, W. E. Aughinbaugh, 611 West 127th street, and Z. M. Delman, 126 Avenue C—all in New York City. Principal office, New York City. To manufacture tires.

Cleveland Rubber Corporation Co., The, January 6 (Ohio), $3,000,000. O. Hibner, (president), C. B. Gaunt, (vice-president) and W. I. O'Bryan, (secretary and treasurer)—all of 1900 Euclid avenue, Cleveland, Ohio. Principal office, 1900 Euclid avenue, Cleveland, Ohio. To manufacture pneumatic tires.

Crossley Rubber Co., The, February 16 (Ohio), $15,000. D. A. Crossley, 1194 Cook avenue, Lakewood, E. W. Stuart, Hamilton building, Akron, C. E. Gosson, corner Central avenue and East 71st street, C. M. Less, 8413 Cedar avenue and A. Jacobson, 14613 Oronoco avenue—all of Cleveland, Ohio. Principal office, 1305 Prospect avenue, Cleveland, Ohio. To handle on a wholesale and retail basis rubber tires, rubber boots, mechanical goods and rubber sundries of all kinds.

Davis Pneumatic Tire Co., April 17 (Delaware), $200,000. W. I. N. Lofland, G. W. Morgan and F. Jackson—all of Dover, Delaware. To manufacture, deal and trade in pneumatic tires of rubber or steel for automobiles and motor-driven vehicles.

Durable Tire Co., Inc., March 19 (New York), $10,000. S. A. Paul, 870 East 163rd street, Bronx, New York, D. D. Deutsch and J. L. Diamond—both of 1789 Broadway, New York. Principal office, New York City. To deal in tires, etc.

Equitable Tire & Rubber Co., Inc., March 20 (New York), $1,000. S. Bernheim, 35 Nassau street, New York City, C. A. Weldon, 591 Seventh street and H. H. Jacobson, 373 Grand street—both in Brooklyn, New York. Principal office, New York City. To manufacture automobile tires.

Fulton Tire Corp., April 12 (New York), $200,000. S. Bernheim, 35 Nassau street, New York City, H. H. Jacobson, 373 Grand street and C. A. Weldon, 591 Seventh street—both in Brooklyn, New York. Principal office, New York City. To manufacture automobile tires.

Great Lakes Tire Service, Inc., March 8 (New York), $10,000. A. Foshay, A. G. Thaanum—both of 128 Broadway and A. Skillman, 1896 Bathgate avenue—both in New York City. Principal office, New York City. To manufacture rubber goods, etc.

Hunt Rubber Co., April 25 (Massachusetts), $50,000. W. D. Rockwood, 88 Broad street, M. D. Corrigan and M. E. Sullivan—both of 519 Tremont building—both in Boston, Massachusetts. Principal office, Boston, Massachusetts. To manufacture and deal in rubber, fiber or composite goods or materials.

Jamaica Tire & Rubber Co., Inc., April 16 (New York), $2,000. S. Bernheim, 35 Nassau street, New York City, H. S. Hartstein, 250 Havemeyer street and C. A. Weldon, 591 Seventh street—both in Brooklyn, New York. Principal office, New York City. To manufacture tires.

Kohut Rubber & Tire Co., The, February 14 (Ohio), $100,000. C. E. Clark (president), C. G. Dick (vice-president), and L. W. Crane, (secretary and treasurer). Principal office, Gallipolis, Ohio. To manufacture tires.

"Miss Liberty" Knitting Needle Co., The, February 18 (New Jersey), $5,000. I. A. Kip, Jr., Ridgewood Road, South Orange, New Jersey, W. R. Cooke, 60 Sherry street, Richmond Hill, W. L. Heyer, 374 Pine street, Freeport—both in Long Island, New York, and R. D. Tobias, 225 West 39th street, New York City. Principal office, 810 Broad street, Newark, New Jersey. To manufacture, buy, and sell (rubber) knitting needles.

New Jersey Car Spring & Rubber Co., Inc., April 6 (New York), $525,000. G. W. Henne, Mansfield, Ohio, G. W. Stevens, Chicago, Illinois, and W. M. Pepper, Bretton Hall, New York City. Principal office, New York City. To manufacture mechanical rubber goods, tires, tubes, etc.

Peerless Rubber Co., Limited, March, 1918, (Ontario Companies Act), $60,000. H. B. E. Scott, (president), F. C. Noice, (vice-president), and D. B. Niblock, (secretary and treasurer). Principal office, Carlaw and Eastern avenues, Toronto, Ontario, Canada. To manufacture bottle nipples, soothers, finger cots, surgeons' gloves and druggists' rubber sundries.

Pell & Dumont, Inc., March 11 (New York), $250,000. G. E. Pell, 60 Broad street, W. A. Schenck, 55 Liberty street—both in New York City, and R. D. Dumont, 283 Parkside avenue, Brooklyn—both in New York. Principal office, New York City. Crude rubber brokers.

Profit Sharing Tire Sales Co., Inc., March 13 (New York), $50,000. F. B. Knowlton, P. D. Benson and W. Metkiff—all of 154 Nassau street, New York City. Principal office, New York City. To deal in automobile tires, etc.

Prudential Tire Service, Inc., April 2 (New York), $25,000. W. Brown, 548 Harvard street, L. R. Silverstein, 103 Weld street and W. L. Lansing, 317 Dartmouth street—all in Rochester, New York. Principal office, Rochester, New York. Tire service station.

Reliable Utilities Manufacturing Corp., April 29 (New York), $6,000. J. J. A. Jones, F. C. McWilliams—both of Schenectady and A. A. Walrath, Fort Plain—both in New York. Principal office, Fort Plain, New York. To manufacture rubber type and type holding machines.

Reliance Tire Co., Inc., March 20 (New York), $10,000. W. Loebmann, 583 Ridgewood avenue, Brooklyn, D. B. Nally, 125 Wallace avenue, Mount Vernon, and W. Wagner, Hopewell Junction—all in New York. Principal office, New York City. To deal in tires and tubes.

Rocky Mountain Tire Service, Inc., March 1 (New York), $10,000. A. Foshay and A. G. Thaanum—both of 120 Broadway, and A. Skillman, 1986 Bathgate avenue—both in New York City. Principal office, New York City. To manufacture rubber goods.

Arthur W. Stedman, Inc., May 9 (New York), $50,000. A. W. Stedman, 20 Pierrepont street, A. F. Southcombe, 821 52nd street—both in Brooklyn, New York, and J. J. Todd, 38 Nassau street, New York. Principal office, New York City. To deal in crude rubber.

Story Rubber Corp., March 23 (New York), $625,000. E. G. Story, Bayside, E. D. Story and R. Jenkins—both of Hempstead—both in New York. Principal office, Hempstead, New York.

W. E. BARKER INVESTIGATES FAR EASTERN MARKETS.

W. E. BARKER, the well-known representative of the United States Rubber Co., has recently returned from a six months' trip through the Far East where he investigated the general commercial possibilities of the various countries included in his itinerary. He sailed from Vancouver, British Columbia, October 26, 1917, on the steamship *Russia* and before his return on April 11, he had visited Japan, China, French Indo-China, Manchuria Korea, the Philippines, Java, Sumatra and the Federated Malay States.

W. E. BARKER, ON BOARD FRENCH MAIL STEAMSHIP *Porthos*.

With broad commercial experience and a comprehensive knowledge of general trade conditions, Mr. Barker is well equipped as a commercial investigator and therefore his opinion of eastern trade conditions after a personal visit is of value.

The prevailing shipping difficulties are doubtless unfavorable to a large volume of trading at the present time, yet he believes that future possibilities for increased trade with these countries are very bright. China, although undergoing a period of reconstruction, offers a particularly promising field that will develop rapidly when the country is finally established on a sound money basis.

It is particularly gratifying to learn that his experience with Japanese business men has been most satisfactory and belies the adverse opinions of a general character that are sometimes heard in criticism of these progressive people.

While in Sumatra he visited the plantations of the United States Rubber Plantations, Inc., at Medan, where 100,000 acres are devoted to the cultivation of *Hevea* rubber, the largest rubber plantation in the world controlled by American capital.

PERSONAL MENTION.

Hugh Miller has been appointed district traffic manager of the United States Rubber Co., with headquarters at the Boston office, 130 Essex street, Boston, Massachusetts.

Victor Moon, of the Toledo Rubber Co., Toledo, Ohio, has been appointed Commissioner of the Ohio Automobile Trade Association, succeeding W. A. McCurdy, who is State Automobile Registrar. The executive office of the Association is at 8 East Long street, Columbus, Ohio, where Mr. Moon will spend his entire time in the interests of the organization.

A. B. Coffman, an experienced bicycle and motorcycle man, formerly with the Consolidated Manufacturing Co., Toledo, Ohio, manufacturer of bicycles, has become identified with the sales promotion department of the Kokomo Rubber Co., Kokomo, Indiana, manufacturer of "Kokomo" tires. Mr. Coffman will call on the trade throughout the United States; also on the traveling representatives of the company, whom he will coach on goods and policy. In addition, he will establish new agencies.

Harry C. Hixenbaugh, Steubenville, Ohio, has bought from O. C. Blatt the Fairmount Vulcanizing Co., Fairmount, West Virginia. He will handle United States and Goodyear tires.

Colonel Samuel Pomeroy Colt, president of the United States Rubber Co., New York City, and a party of guests left Providence June 2 for "Camp Colt," in the Maine woods, to enjoy a three weeks' fishing trip. The camp is located on Kidney Pond, at the base of Mount Katahdin, amid beautiful scenery, some thirty-five miles up the Penobscot River from Norcross. Trout and bass fishing abound. This year the party consists entirely of "braves," no "squaws" being permitted to dwell around the camp fires of "Camp Colt." The party consists of United States Senator Le Baron B. Colt, Dr. Calvin S. May and Messrs. Walter S. Ballou, Edward A. Barrows, Harold J. Gross, Edward M. Guild and Colonel Colt.

George W. Greene, a well-known rubber mill superintendent, has recently accepted a position as factory manager of the Great Republic Tire and Rubber Manufacturing Co., McAllister, Oklahoma. The plant has practically completed the installation of machinery and equipment. It is expected that an office building and additional factory units will be added later.

W. I. Bullard, assistant treasurer of the Goodyear Cotton Mills, Inc., Killingly, Connecticut, was elected treasurer of the National Association of Cotton Manufacturers, at its meeting held in Boston, Massachusetts, on May 21, 1918.

FORMER PRESIDENT OF AJAX RUBBER CO.

WILLIAM G. GRIEB, for two years president of the Ajax Rubber Co., Inc., New York City, and Trenton, New Jersey, resigned from that office in order to have more time for other activities of the company and for personal interests. Mr. Grieb is one of the directors and was actively engaged in the early spring in an attempt to relieve the coal situation in New Jersey.

WILLIAM G. GRIEB.

Mr. Grieb has been engaged in the rubber business in one branch or another since 1873, having then identified himself with the wholesale rubber footwear business conducted in Philadelphia by J. G. Grieb & Sons. By 1887 he had become the senior partner and a rubber factory was acquired in Trenton, New Jersey, for making rubber soles and other specialties the business required. This was incorporated as the Grieb Rubber Co., of which, in 1899, Mr. Grieb was elected president. In 1906, the Ajax Standard Rubber Co. consolidated with the Grieb Rubber Co. under the name of the Ajax-Grieb Rubber Co., and Mr. Grieb accepted the vice-presidency. Subsequently, in 1910, he became president. Two years ago, the company requiring additional funds, the Ajax Rubber Co., Inc., was formed and was financed by Wall Street interests, when Mr. Grieb was again made president.

During the last year the company has acquired the Racine Rubber Co.'s plant at Racine, Wisconsin, and has found this step a most advantageous one.

During a recent interview, Mr. Grieb stated that the Ajax company was the first to offer a 5,000-mile guarantee on its tires, and that the Ford, Maxwell-Briscoe and Maxwell companies were among the very first to use them. The Ajax company is now following the policy of equipping its salesmen with small automobiles of the Ford and Maxwell-Briscoe type in order to assist in relieving the transportation problem of the railroads.

Mr. Grieb has a large interest in the prosecution of the war from a personal as well as from a patriotic point of view. Three of his four sons and a son-in-law are in the Army, some of them being in France, and his two daughters are doing hospital work. As was noted in THE INDIA RUBBER WORLD of September 1, 1917, the fourth son was a pilot in the aviation service in France, and died there subsequent to injuries received while flying. One of the three sons now in the war formerly conducted a business in Philadelphia, and this is now being carried on by Mr. Grieb, being one of the personal interests to which he is devoting some of the time gained by relinquishing the presidency of the Ajax company.

Mr. Grieb is succeeded in the presidency of the Ajax company by H. C. McClaren.

GENERAL ELECTRIC CO. ELECTS DIRECTORS.

The General Electric Co., Schenectady, New York, at its annual meeting on May 13, elected the following directors: Gordon Abbott, Oliver Ames, Anson W. Burchard, C. A. Coffin, George P. Gardner, Henry L. Higginson, Robert Treat Paine, 2d, Marsden J. Perry, Seward Prosser, E. W. Rice, Jr., S. L. Schoonmaker, Philip Stockton, B. E. Sunny, and M. F. Westover.

GENERAL ELECTRIC'S TWENTY-SIXTH ANNUAL REPORT.

The twenty-sixth annual report of the General Electric Co., Schenectady, New York, dated April 15, 1918, states that the volume of business done during the year 1917 exceeded that of any previous year. While the increase extended to nearly every line of products made by the company, a substantial proportion was due to government orders. Higher prices, owing to the increased cost of material and labor, were also a factor in the larger total value of orders. Orders for electrical and mechanical goods received during 1917 amounted to $246,778,491 against $167,169,058 in 1916. The amount of sales billed during the same year was $196,926,317.79 against $134,242,289.99 in 1916, while the surplus for the year amounted to $15,737,946.06. During 1917 there was expended for land, buildings and other structures, tools, machinery, equipment and fixtures, the sum of $22,320,895.06, which was made necessary by the increase in business.

At a special meeting of the stockholders of the company on January 3, 1918, it was voted to increase the authorized capital stock of the company from $105,000,000 to $125,000,000. On the following day, the directors voted to offer to the stockholders of record January 14, 1918, the right to subscribe at par for one share of additional stock for each ten shares then outstanding, subscriptions to be made on or before February 15, 1918. This new stock has since been all taken, as proposed.

Dividends were declared by the company during 1917, as follows:

Cash dividends, 8 per cent. quarterly payments	$8,120,648
"Red Cross" dividend, 1 per cent cash	1,015,078
Initial stock dividend, 4 per cent per annum	2,030,156
Total	$11,165,882

MALM ENGINEERING CO. ACQUIRES PATENTS.

The Malm Engineering Co., 588 Drexel Building, Fifth and Chestnut streets, Philadelphia, Pennsylvania, has leased from the Malm Machine Co., Dayton, Ohio, owners of the patents, the exclusive right to manufacture its rotary punching machinery used in the manufacture of rubber heels and soles.

THE NEW PRESIDENT OF THE NATIONAL ASSOCIATION OF WASTE MATERIAL DEALERS.

EMANUEL SALOMON, who was elected president of the National Association of Waste Material Dealers at its annual meeting last March, is one of the best-known and most universally respected members of that organization. He has been associated with the waste material trade all his business life, entering his father's employ in 1902 and remaining until 1908, when he became connected with the house of Felix Salomon & Co., the members of which, though bearing the same name, are not related to him. While with that house he specialized in the handling of wood pulp for paper manufacturers' use. In 1915, at the death of his father, the business of the latter, which had been established many years, was incorporated as A. Salomon, Inc., and Emanuel Salomon became president. Since that time the house has shown a steady and commendable expansion and to-day stands high in the trade.

EMANUEL SALOMON.

Last year Mr. Salomon organized the Iron Trading Corporation for the purpose of handling iron, steel and metal scrap.

His election to the presidency of the National Association of Waste Material Dealers as successor to Louis Birkenstein was the result of a unanimous vote. The organ of the trade in commenting upon this says:

The newly elected president represents the best type of the young business man whose vision is broad and whose energy knows no bounds. In his service as chairman of the Paper Stock Division, Mr. Salomon demonstrated that he was made of the right stuff to become leader of the organization as a whole. Virile and equally tactful, he is endowed with the rare gift of being able to bring differing viewpoints into unison, and his administration is certain to be productive of that harmonious teamwork on the part of the membership so essential to the production of results.

ARCHER CORD TIRE IN THE CENTRAL WEST.

The Archer Cord Tire & Rubber Co., Inc., 711 15th avenue, N. E., Minneapolis, Minnesota, was first incorporated in 1916 under the name of the Twin City Cord Tire Co. In the spring of 1917 it changed its name as above. The officers are: Frederick Graham, president; William Bieter, vice-president; Maurice A. Hessian, secretary-treasurer; and W. F. Bigelow, general manager. The company makes a patented cord tire.

ARTHUR W. STEDMAN, INC., CRUDE RUBBER BROKER.

Arthur W. Stedman, Inc., has taken offices at 68 Broad street, New York City, where it will conduct a commission and brokerage business in crude rubber. Associated with Mr. Stedman, whose name the new concern will bear, is J. Jackson Todd, an expert on rubber growing and former president of a plantation company, who gained his business experience with the rubber trade in London.

TRADE NOTES.

The Reliance Tire Co., Inc., has removed from 235 West 52nd street to the Buick Building, 1737 Broadway, New York City.

The McNaull Tire Co., Toledo, Ohio, announces the following appointments: Herman O. Leppig, formerly Pittsburgh representative of the Falls Rubber Co., sales manager of Central district; T. E. Gray, formerly of Gray & Reardon, Dallas, Texas, sales manager of Southern district; W. F. Smith, president of the Royal Blue Line Co., president and general manager of the McNaull Tire Co. of New England, with headquarters in Boston, Massachusetts; Clifford L. Barnett, as manufacturer's agent, and C. C. Eichelberger, as sales manager, representing the McNaull company on the Pacific Coast; the Homer S. Williams Co., Youngstown, Ohio, representing the McNaull company in the Cleveland and Youngstown district.

The United States Tire Co. has promoted George W. Manchester to the position of manager of the Oklahoma City branch. He has been a successful salesman in St. Louis, and his promotion is in line with the company's policy of promoting men from its own ranks wherever possible.

The Doss Rubber & Tube Co., Inc., Atlanta, Georgia, has recently placed substantial orders for fabric and machinery with the Bibb Manufacturing Co., Macon, Georgia; John E. Thropp's Sons Co., and William R. Thropp & Sons' Co., the last two being in Trenton, New Jersey.

The Keaton Tire & Rubber Co., 636 Van Ness avenue, San Francisco, has appointed A. T. Tarbell manager at its Los Angeles branch; C. S. Orand has been transferred from Los Angeles to Portland, Oregon, to succeed J. S. Tormey who has enlisted.

The Star Tire Co., Inc., has moved from Broadway and 76th street to 226 West 52nd street, New York City. This is a branch of the Star Rubber Co., Akron, Ohio.

The Century-Plainfield Tire Co., Plainfield, New Jersey, has appointed C. E. Richards assistant sales manager. He was formerly with the Braender Rubber & Tire Co., Rutherford, New Jersey. The company has also appointed Martin K. Whalen its Central district representative, with headquarters at Chicago. Mr. Whalen was formerly Detroit branch manager of the Boulevard Tire and Supply Stores.

The Cuban Tire & Rubber Co., Havana, Cuba, has appointed Guy K. Brown superintendent of factories to succeed Eric P. Altenburg.

The Beard Tire & Rubber Co. has been organized at Columbiana, Ohio, with an authorized capital stock of $50,000, for the manufacture of solid tires. The officers of the company are: C. C. Helman, Cleveland, Ohio, president; George Hupple, Steubenville, Ohio, vice-president; C. E. Beard, Columbiana, Ohio, secretary and treasurer. The directors include all of the above and in addition the following: Ollie Caldwell, Lisbon, Ohio; Carl Schwertfeger, Follansbee, West Virginia, and James Powers, Steubenville, Ohio. The stock issued and outstanding amounts to $29,350.

Schavoir Rubber Co., Stamford, Connecticut, which has been manufacturing only automobile tubes, plans to put on the market a line of rubber toys as soon as rubber conditions permit.

Sterling Tire Corp., Rutherford, New Jersey, has made the following appointments: H. G. Haible, manager of New Haven, Connecticut branch; George T. Booth, assistant manager, Buffalo, New York, branch.

The Victor Rubber Co., Springfield, Ohio, is constructing an addition to its factory building, consisting of a fireproof vulcanizing room for pneumatic tires, 60 by 100 feet, two stories high.

Chicago Tire & Supply Co., Rockford, Illinois, has leased the store at 404 Elm street, which will be in charge of R. M. Adams, manager. The president of the company is Miller A. Crane.

Standard Motor Sales Co., Inc., 317 North Capitol avenue, Indianapolis, Indiana, has changed its name to the Progressive Tire & Rubber Co. The officers of the company are: O. L. Stultz, president; George W. Robey, secretary; and H. W. Vietmeyer, manager and treasurer.

Hillsboro Tire & Supply Co. has opened a place of business at 316 Madison street, Tampa, Florida, where it will handle Mason tires, in charge of J. E. Malone.

The Central Tire Co., 314 Alamo Plaza, San Antonio, Texas, has filed an amendment of its charter with the Secretary of State, increasing its capital stock from $25,000 to $50,000.

The Roberts Motor Tire Co., 2827 Locust street, St. Louis, Missouri, is selling Dayton "Thoroughbred" and "Airless" tires and "Marathon" tubes. It also operates a repair plant. Joseph Roberts is sole proprietor.

Quick Tire Service, Inc., Meriden and North streets, Indianapolis, Indiana, has opened a New York City store at 1962 Broadway, in charge of W. C. Bannister. W. J. Carrigan succeeds Mr. Bannister in Indianapolis as resident manager.

The New Way Tire Co., a Gates Half-Sole Tire service station and formerly the Akron Tire Repair Co., is now located in its own building at 1801 Main street, Joplin, Missouri. It also operates a branch at 113 East Church street, Webb City, Missouri.

The New York State Association of Automobile Accessory Jobbers recently elected the following officers: C. S. Owen, president—Chapin Owen Co., Rochester, New York; W. J. Davis, treasurer—David Brown Electric Co., Ithaca, New York; Edward T. Ball, secretary—Jos. Strauss Co., Inc., Buffalo, New York. The organization will do work similar to that covered by the National Association.

The Kansas City Tire & Rubber Corp., Kansas City, Kansas, states that the closing of its plant at Chester, West Virginia, is only temporary, owing to the freight embargoes and lack of shipping facilities, and adds that no machinery will be removed from the plant except a few molds and forms required at the Kansas City factory.

The Johnstone Tire & Rubber Co., Chicago, Illinois, states that A. A. Peterson, formerly factory manager and superintendent, is no longer connected with the company.

The office of the Quartermaster General of the War Department, Washington, District of Columbia, states that the substitution of 40 by 6-inch dual tires for 40 by 10-inch single tires on the standard Army motor trucks was made in order to reduce the number of different sizes of tires used abroad, with the approval and recommendation of officers in charge of motor transportation there, and not because of any particular preference for the larger tire.

The Cleveland Rubber Corporation Co., Cleveland, Ohio, has appointed William H. Noyes manager of its Cleveland retail store. Mr. Noyes was formerly service manager for the Oldsmobile Co., in Cleveland.

The Republic Rubber Co., Youngstown, Ohio, has appointed L. E. Browning district manager of its Denver, Colorado, branch.

The E. J. McCormick Rubber Co., 355 West 36th street, New York City, has recently dissolved under the laws of the State of New York and discontinued the New York office on May 1, at which time it removed its business to Lodi, New Jersey. At a recent meeting of the stockholders of the Mattson Rubber Co., Lodi, which owns the McCormick company, it was voted to change the name of the holding company to Mattson Rubber Co. Division, Lodi Corps., while that of the McCormick company will be known to the trade as E. J. McCormick Rubber Co. Division, Lodi Corps.

The Archer Rubber Co., Milford, Massachusetts, is operating its mill room, churn room, and vulcanizers on a night shift, which it expects to maintain for some time. The night shift works from six o'clock p. m. to two a. m.

J. Cohen & Son, dealers in scrap rubber and other materials, 111 Bridge street, Peoria, Illinois, is building a new plant in East Peoria, to cover four acres in the center of the industrial

section. Switching facilities will connect with all railroads entering Peoria.

Frazar & Co., general exporters and importers, announce the removal of their offices from 50 to 30 Church street, New York City.

Driver-Harris Co., Harrison, New Jersey, has elected the following officers: Frank L. Driver, president; Arlington Bensel, 1st vice-president; Leon O. Hart, 2nd vice-president; Frank L. Driver, Jr., 3rd vice-president; Percival E. Reeves, treasurer; Stanley M. Tracy, assistant treasurer; and M. C. Harris, secretary. Wilbur B. Driver, former vice-president, has retired from active participation in the business.

The Equitable Tire & Rubber Co., Inc., which was incorporated March 20 with a capital of $1,000, has filed a certificate of increase of capital to $2,000, dated April 19, 1918.

Harrison Works, owned and operated by E. I. du Pont de Nemours & Co., Wilmington, Delaware, has removed its lithopone and dry color sales office to 21 East 40th street, New York City.

The Yarnall-Waring Co., Chestnut Hill, Philadelphia, Pennsylvania, announces that its recent incorporation in Delaware is as a subsidiary company, for sales purposes only.

The Wisconsin State Rubber Co., 181 Fourth street, Milwaukee, Wisconsin, has completed the remodeling of its building, thereby practically doubling its floorspace. It was incorporated November 6, 1913, and carries a line of Mohawk and Mason tires and tubes, Goodyear cord, fabric and motor truck tires, and Motz cushion tires, as well as mechanical rubber goods and rubber clothing. The officers are: H. D. Detienne, president and general manager; D. E. Detienne, vice-president; S. B. Detienne, treasurer, and J. L. Wallis, secretary.

The National Aniline & Chemical Co. now occupies the entire National building, 21 Burling Slip, New York City, and the selling staff of the Century Colors Corp., heretofore a subsidiary of the former company, has been consolidated with the business staff of the parent organization. Nine branch offices are maintained in leading cities of the country under the direction of General Sales Manager S. R. David.

The Fisk Rubber Co., Chicopee Falls, Massachusetts, states that the recent loss by fire at its Worcester branch was slight, amounting to less than $1,000, and was covered by a general insurance fund under which all branches are insured.

The New Jersey Zinc Co., Ogdensburg, New Jersey, states that the press reports of its loss to the extent of from $250,000 to $500,000 on machinery and equipment by reason of the fire of April 10, were greatly exaggerated, as the building burned was only a boiler house and the loss was nominal. It adds that no suspicious circumstances attended the fire.

The Morse Chain Co., Ithaca, New York, is considering taking storage space near Greensboro, North Carolina, for chains held in reserve for shipment into Southern territory.

Mitsui & Co., Limited, dealers in vegetable oils and other Far Eastern products at 65 Broadway, New York City, has rented storage warehouse at 231 William street.

The Perfection Shear Co. announces its removal to the Newfield Building, 1188 Main street, Bridgeport, Connecticut.

Fred. Stern & Co., importers of crude rubber, have moved from 44 Whitehall street to 277 Broadway, New York City.

Standard Underground Cable Co., Perth Amboy, New Jersey, has purchased 35 acres of land near its plant at that place, to provide for future expansion, but no definite plans for the development of the property are under way at present.

The business formerly conducted by the Estate of P. W. Koebig, under the name of P. W. Koebig, has been taken over by James I. Brown, who will operate under his own name as successor to P. W. Koebig, with offices at 116 Broad street, New York City. He will deal in rubber goods, sheet packing, etc., as did the former operators.

The Maguire Rubber Co., manufacturer of high-grade mechanical rubber goods, packings, etc., formerly at 30 Church street, New York City, has removed to the Fifth Avenue Building, 200 Fifth avenue.

A record for quick construction of a factory building was made in May at the plant of the Hodgman Rubber Co., Tuckahoe, New York, where a brick and concrete one-story structure, 60 by 120 feet, was completed and ready for occupancy in twenty-four days after the work was started. This building was erected for the purpose of securing quick relief from a congested condition in one of the manufacturing departments, due to government work.

THE BULL'S EYE RUBBER CO.

The Bull's Eye Rubber Co. is now located at 131 Harris avenue, Long Island City, having purchased the plant, business and goodwill of the De Silva Rubber Co., Inc. Extensive alterations and additions to the plant and machinery equipment are being made in view of the increasing business of the company. The manufacture of heels, hat-bags and special mechanical goods will continue, but the factory will specialize in surgical bandages, inner-tubes and dress shields, the inventions of Arthur C. Squires.

The officers of the company are: Lionel Emden, president; C. Henry Squires, vice-president, and Arthur C. Squires, secretary and treasurer.

ANOTHER TIRE CONCERN IN OHIO.

The Owen Tire and Rubber Co., 1900 Euclid avenue, Cleveland, Ohio, has acquired a site of fourteen acres at Bedford, Ohio, where it is building a two-story and basement factory, to be 63 by 410 feet, with a separate power-house 64 feet square. The factory will be of reinforced concrete, brick faced, with an architectural tower in the center. The officers of the company are: W. C. Owen, president; Charles L. Blatz, secretary and treasurer; and J. H. Burkett, factory superintendent. Mr. Burkett was in charge of the solid tire department of The B. F. Goodrich Co., Akron, Ohio, for 18 years. The company is capitalized at $800,000, practically all paid in.

CHEMISTS' CLUB ELECTIONS.

At the annual meeting of the Chemists' Club held at the clubhouse in New York City, the following officers were elected to serve for the ensuing year: Ellwood Hendrick, president; Charles H. Herty, resident vice-president; Charles L. Parsons, non-resident vice-president, J. R. M. Klotz, secretary; Henry M. Toch, treasurer; Thomas R. Duggan and K. G. Mackenzie, trustees.

Dr. Milton C. Whitaker, the retiring president, was given a handsome silver tea and coffee set in appreciation of his three and a half years of service in that office.

The treasurer reported that the finances are in a most satisfactory condition, and that $15,000 of the surplus fund has been invested in Liberty Bonds.

LIQUIDATION OF MULLER, SCHALL & CO.

Müller, Schall & Co., 45 William street, New York City, importers of crude rubber, went into liquidation on January 1, 1918, and the sole remaining partners—William Schall and Carl Müller—have formed a copartnership under the name of William Schall & Co. It is composed of the following: William Schall; Carl Müller; John Hanway, formerly of Harris, Forbes & Co.; Frank M. Welty, vice-president of the American Colonial Bank of Porto Rico; and Edward S. Paine, formerly of the law firm of Rounds, Hatch, Dillingham & Debevoise. The new concern has taken over practically all the active business of the old, and will continue along the lines formerly followed by Müller, Schall & Co.

THE SIXTH NATIONAL TEXTILE EXPOSITION.

FROM April 29 to May 11, 1918, the Grand Central Palace in New York City was dedicated to the Sixth National Textile Exposition, one of the most remarkable shows ever held in this city. The display of machinery and appliances was the principal feature of the exhibition, showing modern types of cotton and woolen machines in actual operation, developing the raw material into the finished product. The fabric exhibits comprised staples and novelties in cotton, wool, silk and knit goods that clearly reflected the progress being made in the American textile industry. The remarkable advancement made in the manufacture of dyes and dyestuffs and the ultimate independence of American manufacturers in the markets of the world were demonstrated by the many exhibits of dyes and chemicals made in America. That a nation at war is largely dependent upon the textile industry was evidenced by the United States Government displays of the Quartermaster Corps, the Navy, and the Medical Department.

On May 1, 2 and 3 the annual meetings of the National Association of Cotton Manufacturers and the American Cotton Manufacturers' Association were held jointly at the Hotel Biltmore, when a resolution was passed agreeing to support the Government should price-fixing become a necessity. Frederick L. Jenckes, Pawtucket, Rhode Island, and William L. Lyall, Passaic, New Jersey, were elected directors of the National Association of Cotton Manufacturers for three years.

Serving on the exposition reception committee were G. D. Brown, Jr., Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania; C. A. Chase, General Electric Co., Schenectady, New York, and E. A. Rusden, the Textile-Finishing Machinery Co., Providence, Rhode Island.

THE WESTINGHOUSE ELECTRIC & MANUFACTURING CO., East Pittsburgh, Pennsylvania, exhibited a full line of electrical textile equipment, including a 50-horse-power mill motor with autostarter, dismantled to facilitate inspection of its construction. There were motor switches of all types, as well as the Bakelite-Micarta noiseless gears. A comparative test illustrated the effect of proper industrial lighting fixtures. C. T. Guildford, textile engineer, was in charge.

GENERAL ELECTRIC CO., Schenectady, New York, received its friends and guests in a commodious office booth where textile motors and a photographic display of typical motor drives and installations of interest to mill men were shown. There were approximately 100 motors, aggregating 200 horse-power operating textile machines in the various exhibits, thus affording a most interesting demonstration of General Electric motors. L. W. Schugg, of the Schenectady office, was in charge.

LINK-BELT CO., Chicago, Illinois, exhibited a five-horse-power spinning and twisting frame drive, the former being enclosed in a recently perfected oil-retaining casing that prevents accidents and insures perfect lubrication to the chain. An interrupted vision device whereby the speeds of several trains of link-belt-driven gearing were optically reduced, was an interesting demonstration of the chain action. The exhibit was in charge of various representatives, including J. S. Watson, general manager of the chain-drive department.

MORSE CHAIN CO., Ithaca, New York, displayed samples of chains of various sizes provided with the Morse rocker joint, a running exhibit of a chain operating continuously for several days without lubrication, was of special interest. Photographs of silent chain drives from the smallest to a giant chain of 5,000 horse-power were shown, several rubber mill installations being noted.

E. I. DU PONT DE NEMOURS & CO., Wilmington, Delaware, made no display of their textile products, but maintained a spacious reception room where visitors interested in dyestuffs received courteous attention. The Harrison Works, makers of litharge and other rubber compounding ingredients, is a subsidiary of this great industrial organization.

TEXTILE-FINISHING MACHINERY CO., Providence, Rhode Island, was well represented by an exhibit of its various machines made for the textile industry. Of particular interest was the six-cylinder drying machine employed in drying tire duck and fabrics used in the manufacture of proofed goods. E. A. Rusden, president and general manager, W. P. Thompson and W. A. Stelling, were in attendance.

JOHN H. MEYER & CO., Inc., New York City, showed the full line of their diversified products, including samples of the various qualities of tire fabrics they manufacture. Among the cotton goods displayed by this house were colored khaki drills and ducks of government standard, used in making army tents and in the Ordnance Department. An excellent assortment of colors included three made by the dyestuff department of the Springdale finishing plant of this concern, which are used in dyeing government standard uniform cloth. Among the exhibits of this company were samples of goods supplied to the export trade through their well-organized export department.

CANADIAN NOTES.

The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, has elected the following officers: T. H. Rieder, president; V. E. Mitchell, K. C., vice-president; W. A. Eden, secretary; Walter Binmore, treasurer; R. C. Colt, assistant secretary; J. P. B. Daigneau, assistant treasurer. The directors are: Andrew A. Allan, Walter Binmore, R. C. Colt, W. A. Eden, R. E. Jamieson, V. E. Mitchell, K. C., T. H. Rieder, and A. D. Thornton, of Montreal; E. W. Nesbitt, M. P. Woodstock, Ontario; and Colonel S. P. Colt, W. G. Parsons, R. B. Price, Homer E. Sawyer, and Elisha S. Williams, of New York City, U. S. A. The company's annual report for the year ended December 31, 1917, dated April 2, 1918, shows net sales of $16,323,431.94 and net profit of $1,208,018.39, while the surplus December 31, 1917, was $4,305,934.19. During the year the company has inaugurated a pension system applicable to all employes, the cost of which is borne by the concern.

The comparative statement of the business of the Canadian General Electric Co., Limited, Toronto, Ontario, Canada, for the years 1916 and 1917 shows some interesting figures:

	1917.	1916.
Profits	$2,051,609	$2,225,912
Reserve for depreciation	918,012	1,040,491
Net profits	1,133,596	1,185,421
Dividend	780,000	779,844
Surplus	353,596	405,577
Profit and loss surplus	466,293	612,696

The company adds that its total reserve for depreciation now amount to $3,810,314 and its reserve account to $4,000,000.

The Canadian Westinghouse Co., Limited, Hamilton, Ontario, Canada, has elected the following directors and officers: H. H. Westinghouse, chairman of board of directors; Lieut.-Col. Paul J. Myler (president), L. A. Osborne (vice-president), T. Ahearn, John F. Miller, Warren Y. Soper, Sir John M. Gibson, K. C. M. G.; C. F. Sise, Colonel Guy E. Tripp, and Charles A. Terry, directors; F. A. Merrick, vice-president and general manager; John H. Kerr, secretary; A. R. Miller, treasurer; N. S. Braden, manager of sales; H. M. Bostwick, assistant manager of sales. The annual report shows net earnings for 1917 amounting to $846,276.12 as against $979,533.71 in 1916. Dividends paid in 1917 amounted to $498,352 as against $499,616.75 in 1916.

NEW TIRE COMPANY IN WASHINGTON.

The Washington Tire & Rubber Co. has been incorporated with a capital of $1,500,000, located at Spokane, Washington, for the manufacture of automobile tires, tubes, and accessories. It is to build a factory which is expected to be in operation on or before January 1, 1919. The officers are: A. G. Hanauer, president; Thaddeus S. Lane, vice-president; Harry S. Burdick, treasurer; and R. C. Babbitt, manager of sales.

THE RUBBER TRADE IN AKRON.

By Our Regular Correspondent.

THE seriousness of the war situation was forcibly brought home to Akron when the United States Government took under Federal control the entire rubber industry. Under the plans formulated and put into effect by the War Trade Board at Washington for the restriction and licensing of the importing of crude rubber, Akron can only get seven-sixteenths of the supply that factories here have been using for ordinary purposes. An additional amount may be allowed if necessary for filling war orders.

Preparing for the embargo on crude rubber, the larger Akron factories have been accumulating stocks that will last them for months. The Firestone Tire & Rubber Co., the Goodrich, Goodyear, Miller, and one or two other concerns have supplies on hand which will enable them to run at capacity until August 1. By that time, unless the embargo is lifted, the situation will become more difficult to meet, and it is freely predicted that smaller concerns will be seriously hampered.

Probably the best statement on existing conditions is that made by H. S. Firestone, president of the Firestone Tire & Rubber Co., on his return from Washington, where, as a member of the executive board of The Rubber Association of America, Inc., he conferred with the War Trade Board:

The situation is undoubtedly the most serious Akron has faced, but there is no need for undue pessimism. Akron, according to best estimates, takes over 60 per cent of the crude rubber imported by America. This would mean at least 94,200 tons of the 157,000 imported last year. The tentative total for this year is 100,000 tons for all purposes and only 65,000 tons for ordinary commercial usage. The 35,000 tons held for the Government will be diverted, of course, to manufacturers for use in making up war orders. It is estimated that Akron has at least 60 per cent of the war orders placed in America. All of this rubber is in addition to the seven-sixteenths supply otherwise available.

Other rubber manufacturers are equally hopeful about the situation, although they concede that the embargo, if continued, will result in a shortage of automobile tires and that wages in the factories will be lowered.

* * *

The B. F. Goodrich Co. has reduced its capital to $85,500,000 by the retirement of $900,000 worth of the preferred stock, in accordance with the provisions of its charter. There is now outstanding $25,500,000 preferred stock and $60,000,000 common stock.

Twelve years without a single fire loss to exceed $100 is the record of The B. F. Goodrich Co. Not a single insurance claim has been put forward during this period, although the company carries millions of dollars of fire insurance. The record is remarkable when it is known that the company owns property covering over 60 factory buildings with a total floor space of more than 100 acres, and employs 19,000 persons. Twelve fire fighters guard the premises of the company. These men have modern quarters in the heart of the plant, and can reach the farthest point among the factory buildings, a distance of 1,500 feet, in a trifle over two minutes' time. The fire-fighting apparatus consists of one hose cart, 135 chemical tubes, 28,600 feet of fire hose, 2,000 fire pails, 534 fire extinguishers for use on oil fires, and 17,938 sprinkler heads.

Captain C. M. Grimes, of the Goodrich fire department, has resigned to enter the army service. Fire Lieutenant A. D. Rodgers was promoted to the captaincy.

W. W. White has taken the position of machine shop supervisor at the Goodrich plant. Before coming to Akron he was gas engine designer for the Clay Engine Co., of Cleveland.

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The Firestone Steel Products Co. has been formed as the result of the growth of the Firestone rim plant, the business of which assumed such proportions that it was found necessary to separate it from the parent company and organize its business as a separate unit. The stock in the new company is held for the Firestone Tire & Rubber Co., with the exception of the directors' qualifying shares. The officers of the new company are the same as those of the Firestone Tire & Rubber Co., with the exception of J. G. Swain, who becomes vice-president and factory manager and active head of the new company. The officers are: H. S. Firestone, president; R. J. Firestone, vice-president; A. C. Miller, vice-president; J. G. Swain, vice-president and factory manager; S. G. Carkhuff, secretary, and J. G. Robertson, treasurer. The Firestone rim plant was started when the demountable rim for automobile tires was commercially perfected, the Firestone company being one of the pioneers in its development. It has always been one of the profitable departments of the Firestone Tire & Rubber Co., the business steadily increasing until during the past year it supplied 132 out of 184 passenger car manufacturers in the country who used demountable rims on their cars. This plant makes all the steel bases for Firestone truck tires in addition to the steel rims for solid tires made by other rubber companies.

Ferd Plate, an efficiency expert of Chicago, has assumed his duties as office manager of the Firestone Tire & Rubber Co. He succeeds H. H. Crosby, who goes with the newly incorporated Firestone Steel Products Co. as assistant treasurer. Mr. Plate gained his experience with the Loose-Wiles Biscuit Co. and Armour's.

* * *

The Miller Rubber Co. has appointed the Gunn Rubber Co., 27 Abbot avenue, Waterbury, Connecticut, distributer of its casings, tubes and accessories in central Connecticut.

The Miller Rubber Co. has established a direct factory branch in Oklahoma City, under the management of John J. Watt. The territory covered includes Oklahoma and part of Arkansas, taking in Little Rock and Hot Springs.

The Miller Rubber Co., in extending its operations in Texas, has found it advisable to move its branch at Fort Worth to Dallas, maintaining only a service station at Forth Worth. A branch has also been established at Houston and a service station at San Antonio, while distributing agencies in the South at New Orleans and Shreveport take care of the Louisiana trade. The Kansas City branch in Missouri covers much of the other southwest territory.

* * *

J. H. Burkett, of The B. F. Goodrich Co., has joined the Owen Tire & Rubber Co., a Cleveland concern now completing a factory at Bedford. Burkett joined the Goodrich organization 18 years ago. At that time Alexander Winton asked officials of the Goodrich company to make a pneumatic tire for his automobile. It was not until Winton guaranteed to pay for the molds that the task was undertaken and Burkett helped to fill the order, turning out what is claimed to be the first pneumatic tire in the world. Burkett himself bolted it onto the Winton machine.

* * *

Following successful test runs between Chicago and Akron a regular overland truck service between the Akron plant of the Goodyear Tire & Rubber Co. and its Chicago branch has been inaugurated. Officials of the company aim to prove the adaptability of the trucks to overland service and to relieve in some measure the extreme congestion of the railroads due to preference given perishable freight, foodstuffs and coal. Another line is being operated by the Goodyear company between Akron and Boston, and hundreds of trucks will be used upon the two lines carrying the products of the factory to branches in these two cities.

Three thousand seven hundred and eighty-seven Goodyear employes are now in the service of the United States. On an average 175 men leave the Goodyear plant each week to enter the Army.

The alien division of the Goodyear factory school is making special preparations to handle applicants for citizenship who will appear for the next naturalization examination at the courthouse August 8. Necessary coaching and advice is being furnished free to alien employes.

* * *

Large profits were reported by the Mason Tire and Rubber Co., Kent, May 15. According to Treasurer D. M. Mason, sales for the second quarter ended April 30 were $501,540.25, with net earnings of $63,234.02, which will leave over 25 per cent applicable to the common stock after allowing for preferred dividend requirements.

LEE E. CLOUGH.

Lee E. Clough, a pioneer in solid tire construction, has been secured by the Mason Tire and Rubber Co. to take charge of its new solid tire department at Kent. Mr. Clough resigned from the Firestone Tire & Rubber Co. to take up his duties with the Mason company. For eleven years Mr. Clough has been in charge of the solid tire department of the Firestone and for the past two years he has devoted himself to research work in the development department and laboratory of that company.

Lieutenant Joseph Zimmerman, Jr., of the Gas Defense, New York City, formerly a Goodyear man, was married May 25 to Miss Mabel Merkle.

* * *

Miss Lola C. Ferrell, daughter of Mr. and Mrs. J. C. Ferrell, Akron, who has held for two years the position of chief clerk in the employment bureau of the Goodyear company, was married on Saturday evening, May 11, to Sergeant Ray Bair, of Camp Sherman, at the Walnut street Methodist church, Chillicothe. Sergeant Bair was formerly general foreman with The B. F. Goodrich Co. He is the son of Mr. and Mrs. Franklin Bair, of Beach City.

Ferdinand Farmer Dugan, identified with the Goodyear company, and Miss Ruth Sieber, daughter of Mr .and Mrs. George W. Sieber, were married at Trinity Evangelical church on Saturday evening, May 18. Miss Sieber was graduated from Wellesley and Mr. Dugan from Ohio State University. This was one of the fashionable weddings of the early summer.

Walter Tompkinson, secretary of the Goodyear's Australian branch, combined a business and honeymoon trip to Akron last month.

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The Pioneer Rubber Specialty Co., manufacturers of surgeons' and electricians' rubber gloves, footballs and bladders and toy balloons, has purchased six acres of ground at Willard, Ohio, on which there is a factory containing 10,000 feet of floor space. It is supplied with soft water, and a gas well on the premises furnishes gas for heat and power. The company has increased its capital stock from $25,000 to $100,000, but, contrary to reports in the press, does not contemplate building any immediate additions to its plant.

* * *

The Gordon Tire & Rubber Co., Canton, has established a branch in New York City at 136 West 65th street, where it has leased the store and basement. A. I. Butler is manager.

M. S. Lines, formerly with the Michelin Tire Co., on May 1 became special representative of The Gordon Tire & Rubber Co., Canton, in the territory east of Pittsburgh, Pennsylvania.

* * *

The Marathon Tire and Rubber Co., Cuyahoga Falls, has completed a factory addition in which large molded goods and specialties will be made. It is also making considerable quantities of heels and soles, this branch of its products having developed into a large department in less than two years.

* * *

Edward Goodwin, formerly of the adjusting department of the Swinehart Tire & Rubber Co., is now at the United States Naval Training School, Cleveland, Ohio.

G. L. Mather, of the Swinehart engineering department, has resigned to take a position with the Federal Tire Co., of Milwaukee, Wisconsin.

* * *

The Giant Tire & Rubber Co. plant at Findlay was completely destroyed by fire of an unknown origin May 4. The loss to the plant and contents is estimated at $140,000. The company will rebuild, but meanwhile is operating in another factory it was able to obtain temporarily.

FIRESTONE PARK NEWS.

Emphasizing the fact that patriotism is profitable to the individual as well as to the nation, the story of how employes of the Firestone Tire & Rubber Co., Firestone Park, Akron, Ohio, made 94 cents an hour out of their war gardens last year, furnishes an interesting sidelight on the importance of this angle of the food conservation movement.

One of the first to respond to the Government's appeal for war gardens, the Firestone company placed at the disposal of its employes a tract of land near its factories, which had previously been plowed and put into condition for planting.

Altogether there were 265 plots each 50 by 100 feet in size. A superintendent of the gardens was employed and seed sold at an average cost of $2 to each individual gardener. In order to check the results systematically a time clock was installed to record the time when each gardener started and stopped work, then when the vegetables were gathered they were weighed or measured and their value recorded. This idea made the Firestone garden work particularly valuable because it allowed the company to arrive at definite figures, which should be an inspiration to all other big companies and to individual home owners as well.

Working an average of only 2 hours and 29 minutes each a week, the 265 patriots raised foodstuffs valued at $14,205.59. For every hour spent on his or her garden each individual received as a return food products worth 94 cents at retail prices.

The following statistical summary of the Firestone war gar-

FIRESTONE WAR GARDENS.

dens shows how records were kept and how final figures were obtained.

Number of gardens assigned		265
Number of hours worked		15,313
Average number of hours per garden		57
Number of weeks		23
Average hours per man per week		2 hrs. 29 min.
Value of products at retail prices		$14,205.59
Total cost of seeds	$500.17	
Labor, watchmen, plowing	2,390.17	
Miscellaneous expenses	134.22	3,024.56
Net value		$11,181.03
Average value of products from each of the 265 gardens		53.60
Average amount per hour received by each gardener in value of products		.94

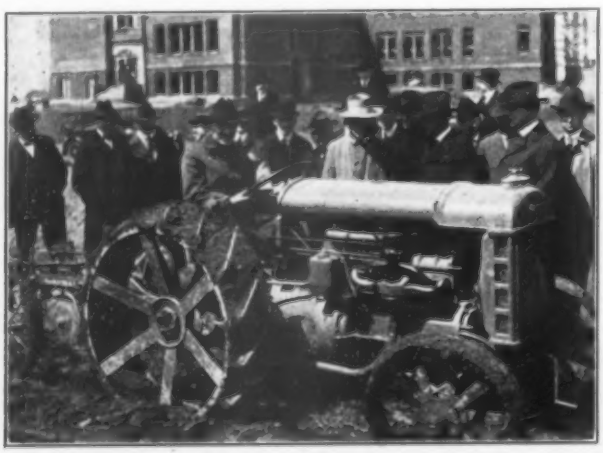
Enthusiastic over the possibilities of the war garden, H. S. Firestone, president of the company, has published an illustrated pamphlet telling about the Firestone application of the war garden idea. This pamphlet is being distributed nationally with the purpose of urging other concerns and individuals to plant war gardens.

As a result of the rapid development of Firestone Park as a home community coupled with the congestion of Firestone mail, the Government has established there a new branch of the Akron postoffice, known as Firestone Park Station, which is now the address of the factories of the Firestone Tire & Rubber Co. The accompanying illustration shows the doorway of the attractive brick building which provides new conveniences and better service to residents of Firestone Park as well as the Firestone company.

FIRESTONE PARK POSTOFFICE.

* * *

In the accompanying photograph, H. S. Firestone is seen operating his new Fordson tractor in Firestone Park. This tractor will plow the Firestone war gardens this summer, and also many vacant lots of land, which will be converted into profitable war gardens for Akron's citizens.



H. S. FIRESTONE OPERATING HIS NEW FORDSON TRACTOR IN FIRESTONE PARK.

THE RUBBER TRADE IN BOSTON.

By Our Regular Correspondent.

BUSINESS is extremely active in all the rubber factories included in the Boston district. As a rule the tire men are pushing production, the footwear men have more orders than they have workmen to fill, and the clothing men are in a similar position, though their work is somewhat handicapped by inability to secure fabrics needed for some of their goods. Makers of mechanicals have been unusually busy, though the demand for garden hose has slackened at the factories,, while it is increasing at the retail stores. The steady advance of leather values makes the belting trade excellent, but manufacturers are now somewhat troubled at the difficulty in securing drills and other fabrics needed. The question of crude rubber supply is not yet a subject of worriment, manufacturers, as a rule being fairly well covered for current and immediate future requirements.

* * *

Patriotism is running high, nowadays, and perhaps it is more demonstrative among crowds of mixed nationalties than with classes of real *Mayflower* descendants. At the Hood Rubber Co. the girls have formed an anti-slacker club, the members of which will use their influence in persuading "service dodgers" to enlist in some branch of United States, British, or Canadian service. A rally at the factory one day last month resulted in fourteen enlistments, eight in British or Canadian armies, and six in the United States Marine Corps, and all these men at once threw up their jobs and went to the recruiting stations, ready for service.

One of the means this anti-slacker club proposes to use is thus explained by a member:

We are going to get a fine bunch of white feathers, and will present at least one to every man who is marked down on our list as a service dodger. Probably he won't wear it, but we girls will take care to see that everyone in Watertown and vicinity knows that it has been in his possession.

But this enthusiasm to enlist, however it may be stimulated, works as a special hardship to the manufacturers, as these men enlisting, or some of them at least, are expert workmen who have been trained specially for the work they are doing, possibly at considerable expense to their employers. These manufacturers are engaged quite largely on government work, goods needed for the conduct of the war, and the resignation of skilled laborers leaves vacancies which may be hard to fill. Every rubber manufacturer is finding great difficulty in obtaining workers who are expert in the various processes and manipulations of rubber goods production, and while as patriotic as any other American citizens, these employers cannot view with complacency the attempts to promote army enlistments from their factory forces.

* * *

The death of Charles J. Bailey, recorded elsewhere in this number, is not likely to result in a discontinuance of the retail rubber goods business of C. J. Bailey & Co., on Boylston street. The store was opened there 28 years ago, and has become almost an institution in this city. Mr. Bailey's death was the third loss in the store's force within a very short time. His son, Horace E. Bailey, left the store but recently to join the United States Navy. Then, in March, George Mills, for 25 years the head salesman, died after a short illness. However, M. S. Lawrence, who for years has been manager of the coats and sundries department, remains and is now conducting the business in the interest of the family. Mr. Lawrence has been associated with Mr. Bailey ever since the Boylston street store was opened, and is, therefore, thoroughly fitted to continue the business along the lines on which it has hitherto been run.

* * *

There is some reason to believe that rubber men may be interested in the new metallic fastened trench shoes (of leather)

now being made for the United States Government. Everett Dunbar, a Lynn shoe specialist and manufacturer, recalls the fact that years ago a mining boot, very popular in California, was put together with clinch nails. The miners complained of cold feet. Dunbar, to overcome this, cut an insole from an old rubber blanket, cemented a similar sole of light sole leather to it, and with this made the boot cold-proof, waterproof and electricity-proof. He believes that the soldiers will find the new trench boot cold, because of the conductivity of the metal fasteners, one end nearly or really in contact with the wearer's foot and the other end with the cold, damp ground. The hint may be worth serious consideration.

* * *

Word has been received in Boston of the wedding at Yokohama, Japan, of Fennimore B. Lynch, of the International Banking Corp., Shanghai, China, and Miss Edith C. Ryder, of Malden, daughter of Frederick T. Ryder, of the Rinex Sole Department of the United States Rubber Co. The ceremony was performed at the American Consulate, Miss Ryder journeying from this country, because the bridegroom could not secure leave of absence long enough to come to America. The couple, after a brief wedding trip, will make their home at Shanghai.

* * *

The Cambridge Rubber Co. is still further enlarging its factory in Cambridge. A new extension, 36 by 60 feet, is to be added to allow for expansion of work rooms.

L. D. Apsley, president of the Apsley Rubber Co., Hudson, Massachusetts, is pushing the company's activities to the utmost to help the Government in winning the war. The factory is striving to furnish its full quota of clothing and footwear as expeditiously as possible, and is shipping goods out steadily. With this production given priority in several departments, the rest of the factory is busy turning out orders which have been booked for its regular trade. The company's report recently issued shows five figures of surplus and profits, and an amount of raw stock and material on hand which must be highly satisfactory, under present restricted conditions.

NEWS FROM NAUGATUCK, CONNECTICUT.

By a Special Correspondent.

FIFTY-SIX men from the Goodyear's Metallic Rubber Shoe Co. have entered the service to date. The most recent volunteers and drafted men are Eugene Gladding, Frank D. Smith, Michael Kenny, Thomas Murtha, Anthony Kukstis, Charles Logis, Frank Affhauser, Joseph Reilly and Raymond Forbes.

Several letters have been received from the men overseas who are all very enthusiastic. Harold L. Goodwin, who has been made a sergeant and is stationed at the American Salvage Depot, writes that some of the fellows in his company are equipped with bath mitts made by this concern.

Sergeant John E. O'Donnell, who began his ordnance training at Dartmouth, and then was transferred to Camp Jackson, South Carolina, was one of the men chosen to go to the Officers' Training Camp at Camp Meade.

The new restaurant is becoming more popular, as the employes realize that they can get an excellent dinner cheaply.

Another institution is the rest room adjoining the hospital. It is finished in oak, has mission furniture and two enameled beds. The new hospital has been equipped in the most modern way. It is finished in white enamel, has sanitary floors, besides all the necessary appliances for surgical treatment, and is in charge of a graduate nurse.

The installation of candy and gum slot machines in the factory is proving a popular innovation. The net proceeds will be set aside as a benefit fund for employes.

The company recently purchased from the New Haven County Farm Bureau eighty-eight pigs, which were sold at cost to employes who wished to keep pigs during the summer. This was

LUNCH ROOM DURING NOON HOUR AT THE GOODYEAR'S METALLIC RUBBER SHOE CO., NAUGATUCK, CONNECTICUT.

done in order to comply with the urgent request by the Government that all should keep pigs who could.

In the Third Liberty Loan drive, the Shoe Company and the Glove Company subscribed a total of $96,000.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

IN accordance with the announcement made in THE INDIA RUBBER WORLD, May 1, 1918, that all the manufacturers of rubber footwear in the United States had made an agreement with the Supply and Equipment Division of the Quartermaster Corps of the War Department, whereby the entire productive capacity of their plants would be diverted to the needs of the Government, the several plants in Rhode Island engaged in these lines are now confining themselves to government work.

This action will result in the complete cessation for a considerable period of the manufacture of rubber boots and certain lines of rubber arctics and shoes for civilian purposes, and is giving the rubber shoe trade considerable concern. So urgent is the War Department's need for quick deliveries of rubber footwear that it has been decided to nullify agreements for the delivery of certain fixed quantities of these goods each month, and to rush pending contracts to completion without any regard for the monthly delivery specified in contracts.

The United States Rubber Co., which controls the National India Rubber Co., at Bristol, and the Alice and Millville Mills of the Woonsocket Rubber Co., at Woonsocket and Millville, respectively, is under contract for the delivery of millions of pairs of rubber boots and other articles of footwear used by the men at the front, and many of its plants will devote their entire attention to this line of work. In addition to the plants of the United States Rubber Co., the Narragansett Rubber Co., at Bristol, and the Bourn Rubber Co. of this city are engaged in the production of rubber footwear for the Army and Navy.

Thus, with practically all the rubber manufacturing establishments of Rhode Island working on government orders, the civilian trade has been almost entirely eliminated and many of the managers of these plants seem to be of the opinion that with the Government placing new orders regularly and in increasing volume, the immediate outlook for resuming the production of civilian goods is somewhat remote.

* * *

The labor situation is still causing the manufacturers a great amount of worry, and it is more than probable that the coming

drafts will take a large number of employes from the various manufacturing establishments, which will further interfere with civilian work. Business generally remains good and all the plants have orders ahead sufficient to insure their operation to capacity for some time to come, even without government work, and in many of the plants new orders are constantly piling up.

* * *

About the middle of May, the "Allied Workers' Union," composed of Italian and Portuguese employes at the plant of the National India Rubber Co., Bristol, demanded that two overseers in the gaiter and tennis shoe room be removed and that men of their selection be substituted. The union also demanded the immediate discharge of all employes in the rubber department who were not members of the organization.

George Schlosser, vice-president of the National company, stated that it had voluntarily given its employes a wage increase of ten per cent, started educational work and instruction among its foreign-born workers, and done everything within reason to keep its employes satisfied. It would not, therefore, grant the union's demands.

Representatives of the Army and Navy took charge of the situation and on May 20 the leaders in the movement were warned that they would be severely dealt with under the provisions of the Espionage and Sabotage Acts if they allowed their alleged or supposed grievances to interfere with the output of goods on government contracts.

After a conference with government officials, the union announced that there would be no strike. Lieutenant James H. Moffitt, who has had 25 years' experience on the Providence police force, was granted retirement and at once commissioned to organize a Federal police department at the National plant as a part of the Government's plan to counteract German propaganda among the rubber workers there. He will have power under war legislation to deal with any movement intended to thwart the production of footwear for the Government, for which the National company holds extensive contracts.

* * *

Frank W. Ferrara, formerly an employe of the National India Rubber Co., Bristol, where he was born, was killed in France on April 29. He enlisted for service in Middletown, Connecticut.

Ruth Graham, who has been in charge of the hospital and its equipment at the National India Rubber Co. plant at Bristol for the last three years, left early in May to enter the naval service as a nurse at Base Hospital No. 14, Brooklyn Navy Yard, New York. She has been succeeded by Louise Franklin, a graduate of St. Joseph's Hospital, Providence, and a daughter of James W. Franklin, superintendent of the National company.

Plans have been made by the managers of the National India Rubber Co.'s main office, tennis department, maintenance department, and wire department, to form a baseball league. The enthusiasm is very keen at the present time and the managers are using every effort to get results. Ralph W. Holt is manager of the office department, Douglas Mowry for the tennis department, Christian A. Ostby for the maintenance department, and Frederick L. Dunbar for the wire department.

* * *

Good progress is being made on the new mill building in course of erection at Warren for the Lynn Rubber Co., which is to move its business to Warren as soon as the new factory is ready for occupancy. The foundation walls are all in and work on the brick construction of the mill proper has been started. Every effort is being made to hurry the work of construction so as to begin the installation of machinery and equipment at as early a date as possible.

* * *

The Bourn Rubber Co. has just purchased several parcels of property on Waldo street, Providence, adjoining its plant. The company contemplates considerably enlarging its plant as fast as it is possible to do so. Already a large addition to its storehouse is under way. It expects to occupy its new insulated wire department factory early in June.

* * *

A service flag bearing fifty stars in honor of employes who are serving in the colors was unfurled last month with patriotic exercises at the Davol Rubber Co. plant, 69 Point street. The honor of unfurling the banner was given to William H. Reilly, an employe of the company since 1889, who has four sons in the service. The exercises opened with the singing of "America," after which "Call for the Colors" was sounded by two Boy Scouts and the flag was unfurled, followed by a short patriotic address from Colonel F. S. Stranahan and the singing of "The Star-Spangled Banner."

* * *

The Newark Rubber Co., 115 Wickenden street, Providence, has just received a contract for 50,000 slickers for the United States Army; this is the third contract. The concern is now employing more than 100 hands, chiefly women, but is doubling its force as rapidly as new operatives can be obtained.

THE RUBBER TRADE IN TRENTON.

By Our Regular Correspondent.

BOTH the rubber manufacturers of Trenton, New Jersey, and their employes did their share toward the success of the Third Liberty Loan. More than $240,000 was subscribed by the twenty rubber companies of this city. A partial list follows:

Empire Tire & Rubber Co. (825 employes also bought bonds.)	$50,000
Ajax Rubber Co., Inc.	50,000
Employes	46,750
Thermoid Rubber Co.	23,000
Essex Rubber Co., Inc.	17,200
United & Globe Rubber Manufacturing Cos.	14,000
Zee-Zee Rubber Co., Yardville	9,750
Delion Tire & Rubber Co.	6,700
Whitehead Brothers Rubber Co.	3,900
Home Rubber Co.	3,800
Hamilton Rubber Manufacturing Co.	3,600

Companies failing to keep lists of the amounts subscribed by employes were the Acme Rubber Manufacturing Co., Luzerne Rubber Co., Semple Rubber Co., Joseph Stokes Rubber Co., and Woven Steel Hose & Rubber Co. Bond purchasers in these plants were numerous, however, and the owners also bought liberally.

To help the drive along, the rubber companies of Trenton and vicinity purchased a page in the local newspapers for the insertion of a bond advertisement.

* * *

William J. B. Stokes, vice-president and treasurer of the Joseph Stokes Rubber Co., treasurer of the Thermoid Rubber Co., and vice-president of the Home Rubber Co., was appointed chairman of the industrial section of the Second Red Cross War Fund Drive to raise a quota of $105,000.

* * *

The Globe Rubber Tire Manufacturing Co. announces the promotion of Special Representative W. P. H. Reilly from special New York representative to general sales manager. Mr. Reilly was formerly Pacific Coast sales manager for the Ajax Rubber Co., Inc., for which he directed the opening of all branches in the West. Mr. Reilly will make his headquarters at 1851 Broadway, New York City, where the Globe executive offices are located.

* * *

W. Rudolph Stokes, a well-known rubber salesman, has donated to the Trenton Boy Scouts a combination rubber sleeping bag, tent and raincoat as a prize for the youngster selling the largest number of War Saving Stamps.

Miscellaneous Foreign Notes.

ENGLAND RESTRICTS THE USE OF LEAD-COVERED CABLES.

OWING to the shortage of lead in England, the Ministry of Munitions has restricted the use of lead-covered cable to extensions of mains and to services required for urgent war work.

Since a large proportion of British enterprises have been using paper-insulated and lead-covered cables throughout on their underground mains systems, the above ruling will prevent continuity in the design of cables in use. In view of the importance of maintaining this continuity, in order to avoid breakdown arising from diversified systems, it has been suggested by the Cable Makers' Association that even where the use of lead-covered cables has been refused by the Ministry, further applications should be made in important cases. Should these attempts not meet with success, the association suggests:

1. That paper-insulated bitumen-sheathed cables should be used up to about 2,200 volts.
2. That bitumen-insulated cables should be used for low-pressure work only.
3. That rubber-insulated cables should be used for low-pressure work only.
4. For services, bitumen- or rubber-sheathed cables laid in earthenware troughs, or drawn through stoneware or cast iron pipes.
5. Where metallic bonding is used in a system, the above cables should be armored with wire or other metallic sheathing, or else drawn into bonded cast iron pipes, sheathings and pipes being connected to the general bonding system. Rubber cables, unless armored, should be put into cast iron or other pipes for short services only.

INSULATING MATERIAL FROM FISH OFFAL.

In THE INDIA RUBBER WORLD, November 1, 1917, mention was made of a new insulating substance called "cornimit," which Danish chemists have obtained from fish offal.

It is claimed that cornimit is superior to galalith as an electrical insulating material, besides being less hygroscopic. Cornimit can also be used in the manufacture of brushes, combs, telephone apparatus, door handles, cane handles, furniture ornaments and rollers for typewriting machines. It can take the place of galalith and syrolith and may replace slate boards for insulating mountings.

The same process which furnishes cornimit also yields oil, both larger in quantity and better in quality than that obtained by other methods of working fish waste. "Fibrin" is another by-product, and is said to be useful as a substitute for oil and glue in paints.

The new Cornimit Co., which has been established to exploit this process, estimates that it can net a clear profit of about $162,000 on 3,000 tons of herring by using the new system.

The method of production of the substances mentioned is kept secret, but the Danish firm is prepared to discuss the sale of its rights for the United States. Those interested may procure the name, address and references of the Copenhagen representative of the firm mentioned by referring to file number 98,498, the Bureau of Foreign and Domestic Commerce, Washington, District of Columbia, or its district or co-operative offices.

SUBSTITUTES IN TIRE MANUFACTURE.

"Kunststoffe," a German paper, states that a good deal of attention is being given to various forms of animal, plant and mineral substances for the manufacture of tires. In place of rubber, flax and hemp are being used. These are soaked in rubber, paraffin wax or celluloid. Tires are also made of a series of layers of calico steeped in rubber, or of strips of leather specially treated. Instead of plant fibers, mineral substances are also in use; for instance, asbestos, which is mixed at a certain heat with balata. From the same source it is reported that air tubes for tires are being made in Switzerland from Japanese silk paper soaked in a form of wax.

THE BRITISH INDUSTRIES FAIR.

The British Industries Fair, held in London during March, has been declared a decided success. Apart from the gratifying trading results, a very marked improvement in the design and finish of the exhibits was noted. Among the features of interest to the rubber trade may be mentioned the display of rubber "comforters," the product of a manufacturer who took up the line in August, 1914, and now turns out 42,000 gross per annum. It is stated that the article is of superior quality and can compete with the best German goods.

THE THIRD LYON SAMPLE FAIR.

Despite adverse conditions caused by the war, the Lyon Sample Fair of 1918 was a great success. The total number of exhibitors was 3,176, of which 2,295 were French, 130 British, and 543 American. This is 600 more than in 1917.

The local authorities are fully convinced that the Lyon Fair is destined to become a permanent national institution and have decided to construct a large and beautiful palace in which to house it, at a cost of some $70,000,000.

German newspapers undoubtedly recognize that after the war the Lyon Fair may prove a formidable rival of the bi-annual Leipzig Fair, though they have pointed out that the rivalry and jealousies among large cities like Paris, Havre, Bordeaux—where fairs have also been instituted—will ultimately be the ruin of the fair at Lyon.

RUBBER PACKING FOR CHILE.

The American Consulate at Punta Arenas, Chile, reports a large demand for steam and water packing, sheet rubber and sheet asbestos, and wishes to be supplied with catalogs of these goods. Catalogs may be in English and, to prevent delay, should be sent direct to users of the articles mentioned. Copies of the list of consumers may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, District of Columbia, or its district and cooperative offices, upon referring to File No. 99,693.

NEW SHOE FACTORY IN CHILE.

La Magallanes Curtidura, Fabricade Calzado y Anexos, was formed in Punta Arenas, Chile, in May, 1917, with a capital of $292,000 and will manufacture boots and shoes.

Machinery has been imported from the United States and the concern, which is backed by some of the strongest men, financially, in the territory, is to open the factory during this month.

The management will be glad to receive descriptive matter and prices on chemicals used in the trade and on findings, including rubber heels.

MEXICAN EXPORT DUTIES ON RUBBER REDUCED.

According to a telegraphic report from the American Consul General at Mexico City, dated May 3, 1918, it has been unofficially announced that the export duties on green guayule will be reduced from 6 per cent to 3 per cent ad valorem, based upon the New York quotations, while the duties on guayule rubber are to be reduced from 4 per cent to 2 per cent ad valorem. The date when the reduction will go into effect has not yet been announced.

Specific rates of export duty were applicable to guayule and guayule rubber prior to the adoption of the present rates on September 22, 1917.

MODIFICATION IN THE ILCKEN-DOWN COAGULATION PROCESS.

THE INDIA RUBBER WORLD for August 1, 1916, contained a detailed illustrated description of the Ilcken-Down process of latex coagulation. Recent modifications have been made in this process which are shown in the formulae that follow:

The latex is treated with an accelerator mixture composed of methylated spirit four fluid ounces, coconut oil one fluid ounce, pure water five fluid ounces, to every gallon of latex. The latex is stirred with a wooden paddle for a few minutes and then run into the column tip-tank. The cover is at once screwed down to exclude air as much as possible. In six to eight hours, according to the nature and condition of the latex, on removal of the cover a soft clot is observed to have formed by anærobic action and risen considerably above the height of the fresh latex. It is important not to fill the barrel too full or the rising clot will burst it. A barrel of 50 gallons capacity should contain not more than 30 gallons of latex. The clot having formed, the cover is again screwed down and a mixture of methylated spirit and benzine in the proportions of two pints of the former to 18 fluid ounces of the latter to every 25 gallons of latex is pumped into the base of the barrel; proportions according to the nature of the latex.

The mixed solvents effect the separation of soft resins and soluble proteins, but scarcely affect the hard resins and insoluble proteins which it is desired to retain. During the crêping most of the dissolved resins and proteins are expressed. About five to ten per cent of the benzine remains in the rubber.

It is asserted that the increase in yield of dry rubber obtained by this method over and above the yield obtained from a similar volume of identical latex by ordinary acetic acid coagulation usually varies from five to ten per cent or more.

Thus, at the Botanic Gardens, Singapore, for six days, from October 24 to 31, 1917, six gallons of well-mixed latex were divided into two identical lots of three gallons each, one lot being prepared by the Ilcken-Down process and the other by ordinary acetic acid coagulation, the entire experiment being under the control of I. Henry Burkill, director of the gardens, and Professor C. F. Baker, dean of the College of Agriculture, Philippine Islands. The result, judged by weight, favors the Ilcken-Down process to the amount of about five per cent. Three weighings were made, (1) wet, (2) dry on November 22, and (3) after lying in the office of the Botanic Gardens until December 11, with the following results:

	Acetic Acid Coagulation.	Ilcken-Down Process.
Wet	76 lbs. 12 oz.	79 lbs. 14 oz.
Dry	60 lbs. 6 oz.	63 lbs. 4¼ oz.
After keeping	62 lbs. 3 oz.	65 lbs.

On the Linsum Estate of the Anglo-Malay Rubber Co., Limited, in Negri Sembilan, comparative experiments were made on a larger scale under the control of the general manager, W. Buyers. On three successive days two lots of identical latex of 50 gallons each were treated by the two methods of coagulation and made into crêpe with the following results:

	Acetic Acid Coagulation.	Ilcken-Down Process.
1st day	179½ lbs.	179½ lbs. (1 piece missing.)
2nd day	166 lbs.	177 lbs. (Increase 6⅝ per cent.)
3rd day	168½ lbs.	184½ lbs. (Increase 9½ per cent.)
	514 lbs.	541 lbs.

As the coagulant employed is 50 per cent cheaper than acetic acid, the process appears to have distinct economic advantages. With a latex containing three pounds of dry rubber per gallon, the cost is less than 1/3 of a cent per pound of dry rubber.

It is also asserted that manufacturers have pronounced rubber prepared by this process as of excellent quality in every respect, and have found that its rate of cure is constant.

BRAZILIAN NOTES.

PRELIMINARY statistics show that the total foreign trade of Brazil during 1917 amounted to $507,990,000, which was greater than the trade of any preceding year during the present war. The trade balance was in favor of Brazil and totaled nearly $75,000,000.

Among the exports may be noted rubber, to a value of $36,397,000, as compared with $36,480,000 in 1916, and carnauba wax to a value of $2,146,000 in 1917 and $1,917,000 the year before.

Although the imports during the year under review exceeded those for any other year of the war, on account of high prices and increased ocean freight and insurance rates, the total was $100,000,000 less than the value of imports for 1913. The above-mentioned conditions, however, greatly stimulated local enterprise.

TRADE PROBLEMS.

The war has undoubtedly done much to arouse Brazil to fuller realization of her potentialities. New industries are springing up, new ventures are being encouraged, and there is a general tendency to exploit the vast natural resources of the country and to further domestic and foreign commerce.

Thus there is a movement on foot to hold a congress of the commercial associations of the various cities of Brazil, and it is proposed to discuss, among other matters, expansion of interstate commerce, especially by encouraging the standardization of types of merchandise; unification of state export taxes, and the creation of certain types of staple products of the country to facilitate the handling of the various crops.

Again, at a meeting of the Commercial Association of Rio de Janeiro it was proposed that a committee be appointed to work toward increasing and facilitating reciprocal commercial relations between Brazil and England, France, the United States, Portugal, and Italy; that it should further gather suggestions from chambers of commerce in foreign countries regarding all matters concerning commercial intercourse with this country; that like suggestions be collected for the solution of transportation problems, especially with a view to developing Brazil's merchant marine; and that it collect data and information to intensify domestic production.

NEW INDUSTRIES.

A report was recently presented to the President of Brazil showing the scarcity of caustic soda, the consumption of which is increasing with the constantly growing textile, soap, sugar, and other industries. Rio de Janeiro, Santos and Bahia are mentioned as being best equipped for the manufacture of this article.

In consequence of the report the President published a decree by which the Brazilian Government will loan to the first three factories proposing to manufacture caustic soda in Brazil up to 75 per cent of the cost of each factory. No factory will receive a loan greater than $500,000, and the minimum annual production is to be 500 tons.

It has also been suggested that jute culture might be introduced in Brazil, while plans are afoot for encouraging local coal and steel industries.

THE PRESIDENT-ELECT.

Senhor Rodrigues Alves has been elected president by an overwhelming majority. This is his second term as Brazil's president, and as he is a stanch supporter of the Allies, his election will undoubtedly be regarded with pleasure in the United States. It was owing to his influence that Senhor Nilo Pecanha, the present foreign secretary, was appointed in place of Dr. Lauro Muller. One of the first results of this change was the almost complete cessation of exports by enemy concerns, among whom were many prominent rubber firms.

Rubber Planting Notes.

CONDITIONS IN CEYLON DURING 1917.

THE continued restrictions in the sale of India Council Bills in London, with the resulting stringency in exchange, greatly hampered the export trade of Ceylon during 1917. Despite this circumstance, however, the turnover was not unsatisfactory. Local sales of rubber by public auction were suspended during January, owing to difficulties of payment. When these were overcome, auctions were resumed on February 23.

Irregular and scarce ship tonnage also interfered with the steady march of business transactions. However, the situation was better than expected, and after April priority cargo, including rubber, could be shipped to the United Kingdom.

Throughout the year the freight rate to England on rubber remained at 245*s.* per ton. As for America, a flat rate of 500*s.* net per scale ton is now quoted on all produce. The war charge of 50 per cent and the additional 10 per cent for steamers going via the Cape have been abolished.

At present the rate to North Pacific Coast parts is about 100 gold dollars per 40 cubic feet for rubber.

THE RUBBER TRADE.

In discussing the rubber industry, the chairman at the Ceylon Chamber of Commerce meeting remarked that, although at one time the future did not appear very bright, business during the year turned out more satisfactory than the most optimistic expected. As for the suggestion regarding the reduction of crops, considering that estates in Ceylon, India, and farther East, which are members of the Rubber Growers' Association, represented only about 43 per cent of the whole area planted to rubber, it did not seem likely that any comprehensive adherence to such a scheme could be hoped for.

The total exports of rubber for 1917 showed an increase of 16,652,900 pounds over those for 1916. The distribution in pounds for both years was as follows:

	1917.	1916.
United Kingdom	34,481,672	23,812,305
America (including Canada)	33,262,331	27,256,309
Australia	1,152,594	797,091
France	1,628,015	1,802,217
Russia	229,673	293,674
Italy	387,535	347,632
Other countries	209,809	389,501
Totals	71,351,629	54,698,729

The above table demonstrates the fact that, despite restrictions on exports and shipping difficulties, the largest part of the shipments went to Great Britain.

The quantities of rubber offered at local auction during the past five years and the average prices realized were:

	Pounds.	Average. Rupees.
1913	12,013,824	1.92
1914	13,338,557	1.42
1915	22,333,075	1.65
1916	24,675,206	1.79
1917	23,039,670	1.49

PLANTING NOTES.

At a meeting of the Ceylon Planters' Association the rubber season of 1917 was characterized as having been one of the most favorable on record. Weather conditions were ideal for tapping and harvesting of the crop; trees wintered regularly and the light monsoon with a reasonable rainfall left estates free from pod disease and leaf-fall due to *Phytophthora*. In spite of the shortage of potash, cultivation with the available supplies of manure gave good results.

Diseases continue to give trouble and it is recognized that the appointment of inspectors of diseases, proposed by the Department of Agriculture, is not superfluous luxury.

Research work of the Rubber Growers' Association has established manufacture on definite lines, which guarantee to estates following the recommendations of the Uniformity Committee of the association a good outturn of first quality rubber.

The labor condition has not yet reached that satisfactory stage hoped for. Up to the end of November fewer coolies have been recruited than in any year since 1909. The chief causes have been the curtailment of recruiting by estates, the government restrictions, and to a minor degree the good season in India and the cessation of advertising after March.

THE SITUATION IN MALAYA.

By Our Regular Correspondent.

AT the annual meeting of the Singapore Chamber of Commerce the chairman presented a report of trade conditions in Malaya during 1917.

Naturally, business was affected by the ruling shipping situation, and increases in the values of imports and exports are to be accounted for by inflated prices rather than by larger quantities. Thus the totals for 1916 and 1917 were:

	1916.	1917.
Imports	$406,523,680	$494,327,015
Exports	360,945,691	467,949,939

Figures for wharf and dock tonnages show that, though the number of steamers actually increased in 1917 as against 1916, the tonnage decreased by 410,000 tons.

The shipping restrictions have caused a falling off in certain articles usually imported from Europe. Local importers, however, have replenished their stocks to a great extent with goods from Japan and America.

Exports showed a gradual decline, which might have been greater but for Singapore's fortunate geographic position and good steamship service across the Pacific ocean.

The rubber industry continued to thrive despite lower prices, and the total exports of this commodity have again increased, the estimated amount being 130,000 tons against 99,063 tons in 1916. There has been an enormous expansion in local sales of rubber, a circumstance that has greatly stimulated trade in general. The total quantity sold at Singapore during 1917 was 24,316 tons, which is within a few thousand tons of the whole business done here during the preceding five years.

The chairman remarked on the growing tendency of the world's commerce to bring consumers and producers in closer touch with each other, in consequence of which ever-increasing quantities of produce from the British colonies were exported to foreign consumers without the intermediary of British traders, and larger amounts of foreign-made goods were imported in exchange, to the detriment of British industries.

The appointment of a trade commissioner for the Straits Settlements is therefore viewed with some anxiety, as the scope of his powers may include government control of trading, to which there is strong objection. Control of local shipping is already causing a certain amount of criticism.

RUBBER RESTRICTION AND SUNDAY LABOR.

The proposal of the Rubber Growers' Association to reduce the output of rubber has called forth various suggestions as to how the curtailment may best be effected. At a meeting of the Planters' Association of Malaya the bishop of Singapore delivered a lengthy speech, in the course of which he urged that Sunday labor—a general practice on estates in Malaya—should be abolished, on the plea that the present need for restriction of crops favored such action. This suggestion has been the cause of much argument and correspondence in local papers.

BASIS OF RUBBER EXPORT DUTY CHANGED.

In the most inconspicuous manner possible planters were notified that their agitation had brought about a change in the basis of the rubber export duty, and that the duty would in future be computed on the basis of prices in Singapore instead of in London. On march 15, 1918, the "Federated Malay States Government Gazette" contained the following item:

For the period from March 15 to 21, 1918, inclusive, the duty on cultivated rubber on which export duty is leviable on an ad valorem basis in accordance with the rules under the Customs Duties Enactment, will be assessed on a price of $90 per picul for all grades, and the additional duty of 2½ per cent ad valorem imposed by section 3 of the War Taxation Enactment, 1916, as amended by the War Taxation Enactment, 1917, will be levied.

The importance of these modifications becomes apparent when it is remembered that the basis on March 6 was $115, as compared with $90 on March 15.

"FRENZIED FINANCE" IN JAPAN.

A certain amount of amusement has followed the announcement of the high hopes treasured by a newly formed Japanese company which intends to operate in Sumatra. The Sumatra Gomu Takushoku Kabukishi Kaisha, as the concern is called, has been floated in Japan with the object of planting coffee, coconuts and rubber. The capital is fixed at $2,000,000, divided into 40,000 shares, which are all to be taken up by the promoters and supporters. The property has not yet been acquired; nevertheless, the company, quite convinced of success, blandly announces that for the first term it will declare a 10 per cent dividend, which in fifteen years will rise to 100 per cent!

DROUGHT IN THE FEDERATED MALAY STATES.

A report states that the drought in the Klang and Port Swettenham districts is becoming so serious that water can be supplied for household purposes only. There is not sufficient water for the rubber factories, which means that tapping will have to be stopped on some estates. This is not causing as much anxiety as might be expected, for *Heveas* are now wintering.

NOTES FROM THE NETHERLANDS EAST INDIES.

By Our Regular Correspondent.

ON May 30, 1919, Batavia, the capital of Java, will celebrate the date of its foundation 300 years ago. Material is now being collected for the compilation of a book recording the events of that period.

CREPE OR SHEET?

The question was discussed by G. J. Zuijderhoff at a meeting of the Malang Rubber Planters' Association, Malang, and he stated the following conclusions: (1) the tensile strength of sheet and crêpe are alike; (2) the period of vulcanization is 90 to 100 minutes for sheet and 115 to 125 minutes for crêpe; (3) the mechanical properties of sheet are superior to those of crêpe; (4) the cost of preparing is less for sheet; (5) the method of preparation is simpler for crêpe; (6) there is more uniformity in crêpe; (7) the equipment needed for sheet is cheaper; (8) power must be higher for crêpe; (9) the selling price is at present in favor of crêpe; (10) in both cases proper handling in a well-equipped factory is essential; (11) for the present it is not advisable for anybody to change over from the method in use, although sheet factories, especially new ones, equipped with machinery for crêping, are recommended to turn out as much crêpe as possible in addition to sheet.

Dr. de Vries remarked that an important factor is the difference in weight. Furthermore, it often occurs that a considerably larger quantity of acetic acid is needed for sheet than for crêpe.

RUBBER MACHINERY.

The difficulty of procuring plantation factory machinery in the Middle East and the disappearance from the market of many of the makes that had been proved best, have led the A. V. R. O. S. (East Coast of Sumatra Rubber Planters' Association) to issue some information regarding the choice of rolls, these being the chief consideration in manufacturing crêpe.

In ordering rolls, it is declared, the purchaser should specify as follows:

1. The rolls should not leave black marks—they should not contain graphite.
2. They should not be so hard that when they are polished they will not grip the rubber properly or otherwise cut the crêpe to pieces.
3. Rolls that are not made of material that is too soft and which cannot stand much wear.

RESTRICTION OF OUTPUT.

The low price of rubber and the accumulation of stocks combine to encourage curtailing rubber production in the Netherlands East Indies. In the opinion of one Dutch writer, the present condition has been brought about by "local overproduction," and while the output increases throughout the Dutch colonies in the East, and the British as well, consumption has been decreased by the shutting off of large importing countries and by lack of the necessary ship tonnage. Therefore, if Dutch producers could come to an agreement with foreign planters whereby the crop would be reduced to half or two-thirds of the present output, the price could be kept at a satisfactory level.

AMERICAN BANK IN THE DUTCH EAST INDIES.

The International Banking Corporation of New York has opened a branch office for general banking business in Batavia, Java. This institution has been doing business in Manila and Singapore for some years and is the first to establish direct financial connections with the Dutch possessions. Conditions arising from the war, such as the shutting off from the Dutch East Indies of sources of supply upon which they had previously relied for manufactured goods, the greatly increased demand in America for rubber and other tropical raw materials, and the establishment of Dutch trans-Pacific steamship lines giving reasonably direct connections between the Pacific coast of the United States and Batavia and Soerabaia, have tended greatly to increase the importance of American trade with these countries during the last year or two. The establishment of the above banking facilities represents, therefore, an important step forward in making these commercial connections permanent.

RUBBER SHIPMENTS FROM JAVA RESUMED.

Notice was received that Dutch steamship companies had absolutely stopped sailings to British or American ports. The reason given for this action was that Dutch steamers had been seized at Singapore, at Hongkong, in India, and in Australia, in violation of an agreement made in February last with the Indian Government. It is expected that the ships will be set free as soon as the exact wording and spirit of the agreement is known to the British Government in London.

The attitude of the companies caused a temporary cessation of exports—rubber included—to America, the Straits Settlements, and British India. This circumstance attracted the attention of the Amsterdam Chamber of Commerce, and telegrams were sent to the Dutch Ministers of Colonies and Foreign Affairs, urging that East India traffic with the United States be resumed. In consequence of this intervention, instructions were cabled to the Governor-General of the East Indies permitting sailings to America.

RUBBER MARKETS AFTER THE WAR.

The question whether the Dutch rubber market will be transferred from Amsterdam to Batavia and Medan has already been touched upon in the February 1, 1918, issue of THE INDIA RUBBER WORLD. It is therefore interesting to add the opinion of a director of the Sumatra Rubbercultuur, Mij. "Serbadjadi."

He points out that the colonial markets now depend chiefly

on one importing country, America, and this is a disadvantage. Normal conditions will naturally bring other customers, too, but the question is whether it is to their advantage to buy in Batavia or Medan. For it must not be forgotten that Amsterdam is more favorably located with regard to both European and American buyers. The price obtaining in this market will be on a commodity that has already undergone the test of transportation. Moreover, a manufacturer will have the opportunity of seeing the goods before he purchases them, a circumstance rendered impossible in the Netherland East Indies markets on account of the distance.

Another consideration was the fact that company directors, obliged to cable instructions to Java or Sumatra, are unable to take advantage of sudden fluctuations, for, in the event of their having set too high or too low a limit, wired rectifications would not arrive in time to be of use.

GUIANA FOREST INDUSTRIES.

The latest figures for the production of balata and rubber in British Guiana show a slight increase for both items, the amounts of balata and rubber entered during 1916 and 1917 at the Department of Lands and Mines reading:

		1916.	1917.
Balata	*pounds*	1,478,631	1,572,722
Rubber		1,296	3,771

In considering rates of export taxes on various forest products, the local government proposed to put a tax of two cents per pound on balata—equivalent to about three per cent ad valorem. Rubber has been intentionally omitted, as the greater part of the rubber exported is from plantations, and it is desired to encourage the cultivation of this product as much as possible.

RUBBER AND GUTTA EXPORTS FROM THE STRAITS SETTLEMENTS.

Recent statistics for 1916 and 1917 show that the declared exports of rubber and gutta from Singapore to the United States were as follows:

	1916.		1917.	
	POUNDS.	VALUE.	POUNDS.	VALUE.
Gutta jelutong	20,855,126	$1,091,078	10,108,209	$871,969
Gutta percha	498,246	89,825	2,212,719	281,940
Gutta siak	1,198,047	126,171	2,346,405	314,286
India rubber	92,332,048	51,322,061	167,742,830	87,232,774
Totals	114,883,467	$52,629,135	182,410,163	$88,700,969

In addition to these exports, large quantities of rubber came from Penang, amounting to 25,474,672 pounds of rubber, value $14,103,936, in 1917, as compared with 9,909,738 pounds, value $5,645,857, in 1916.

These figures once more illustrate the expanding direct trade between the United States and the Straits Settlements.

BURMA'S RUBBER PRODUCTION INCREASES.

Burma took up the planting of rubber at a comparatively recent date and appears to be progressing slowly but surely. Statistics giving the output of the leading rubber plantations for the last five years follow:

	1913. *Pounds.*	1914. *Pounds.*	1915. *Pounds.*	1916. *Pounds.*	1917. *Pounds.*
Mergui Crown Rubber Estates.	305,266	366,279	396,290	466,045	527,556
Rangoon Para Rubber Estates.	61,302	100,808	190,000	252,840	360,731
Burma Para Rubber Co.	55,907	89,312	167,861	205,676	283,745
The New Amherst Rubber Estates	25,150	24,467	32,758	30,441	33,252
Kambay Para Rubber Estates.	8,392	11,108	13,685	14,016	14,809
Hevea Burma Rubber Co.	.....	.....	.....	10,595	54,168
Tenasserim Hevea Plantations	.....	.....	.....	.....	29,878
Tamok Rubber Estate	.....	.....	.....	.....	24,414
Moulmein Rubber Plantations.	.....	.....	.....	.....	18,970
Total	456,017	591,974	800,594	979,613	1,347,523

These plantations produce most of the rubber in Burma. Customs statistics give the exports of rubber during the five fiscal years ended March 31, 1917, as follows: 1912-13, 526,176 pounds; 1913-14, 765,072; 1914-15, 987,392; 1915-16, 1,285,984; and 1916-17, 2,301,157 pounds.

The exportation of rubber from the various ports during the calendar year 1917 was as follows:

	POUNDS.	VALUE.
Rangoon	1,599,084	$976,917
Mergui	994,873	508,766
Victoria Point	89,893	49,281
Tavoy	85,015	41,430
Totals	2,768,865	$1,576,394

GOVERNMENT TO ENCOURAGE PLANTERS.

Negotiations between the Government of Burma and the Lower Burma Planters' Association are afoot with the purpose of considerably extending the cultivation of rubber in this region. According to the Financial Commissioner of Burma, W. Thompson, there are hopes of planting 200,000 acres of rubber in Tennasserim Division alone. The future welfare of the province will be powerfully influenced by the early development of this land, and rules have been drafted with a view to encouraging planters. Mr. Thompson has already proposed to the Government to have a survey made of areas suitable for the cultivation of rubber, while it has further been urged to aid new estates having at least 20 acres of land cleared and planted within one year prior to application, this assistance to consist of a 6¼ per cent interest-bearing loan of not more than 100 rupees per acre cleared and planted.

Furthermore, a survey is being undertaken of waste land suitable for rubber cultivation in the Mergui district. Such land will be divided into blocks of 300 to 500 acres. It is expected that a total area of 15,000 to 100,0000 acres will be blocked out this season.

PHILIPPINE RUBBER STATISTICS, 1917.

The trade review published by the Manila Merchants' Association reports that during the year 1917 business in general was on a satisfactory basis. The balance of trade was in favor of the Philippines, exports having amounted to $95,654,307 and imports, to $65,796,826.

While the exports of gutta percha fell off by half, those of crude rubber more than doubled, the figures for the former article being 7,180 kilos, value $5,820, in 1917, against 14,981 kilos, value $11,449, in 1916; and for the latter, 14,915 kilos, value $35,099, during the past year, as compared with 6,628 kilos, value $16,860, in 1916.

The 1917 imports of manufactures of india rubber, excepting tires, totaled $391,116, while the amount for the previous year was $350,859.

RUBBER GOODS PROSPECTS IN JAMAICA.

Conditions in Jamaica indicate that the sugar industry, which about twenty-five years ago was the big industry of the island, is now coming back. The terrible hurricanes of the last few years have caused such wide-spread destruction to the banana crop that many Jamaican planters are inclined to favor a revival of the sugar industry. The establishment of sugar centrals in Jamaica offers a big opportunity to American manufacturers for the sale of sugar-making machinery in which rubber drive and conveyor belting, strainers and packing play a most important part.

AMENDMENTS TO THE TARIFF LAW OF EQUADOR.

Certain modifications of the Customs Tariff Law of the Republic of Equador went into effect on January 1, 1918. The new amendment has added to the list of prohibited imports feeding-bottles with rubber or glass tubes, and further frees rubber belting for machinery from duty, but imposes a tax of 22½ centavos per gross kilogram (4.09 cents per pound, United States currency) on canvas and duck of hemp or cotton.

Recent Patents Relating to Rubber.

THE UNITED STATES.

ISSUED MARCH 26, 1918.

NO. 1,260,304. Resilient pneumatic inner tube tire. W. R. Bethem, Chicago, Illinois.

1,260,377. Erasing device, including eraser. L. E. Hansen, Buffalo, New York.

1,260,397. Interchangeable split tire-holding rim. J. Kelsey, assignor to Kelsey Wheel Co., Inc.—both of Detroit, Michigan.

1,260,455. Quickly-detachable means for securing tires. F. M. Rilleau, San Francisco, California.

1,260,506. Tire protector and auxiliary tread. A. G. Bolvin, Cohoes, and F. J. Davignon, Troy—both in New York.

1,260,587. Tire tool. H. A. Sorrell, Asheville, North Carolina.

1,260,634. Tire removing and replacing tool. A. L. Buhrmeister, Suisun, California.

1,260,651. Automobile tread. W. H. Courtenay, Philadelphia, Pennsylvania.

1,260,727. Compound resilient tire. W. Steinberg, Jamaica, New York, assignor of one-third to D. Wegner, New York City.

1,260,788. Golf and like ball. E. Miller, London, England, assignor to The Radium Golf Ball Co., Limited, New York City.

1,260,791. Non-skidding automobile tire. H. Ohashi, New York City.

1,260,835. Protector for valve stems of tires. W. H. Upton, New York City.

1,260,893. Air cushion tire. W. J. Guest, Milford, Connecticut.

1,260,942. Ventilated boot or shoe. R. B. Price, New York City, and C. Lee, Naugatuck, Connecticut, assignors to The Goodyear's Metallic Rubber Shoe Co., Naugatuck, Connecticut.

ISSUED APRIL 2, 1918.

1,261,012. Tire casing or shoe. D. J. Demas, Pittsburgh, Pennsylvania.

1,261,013. Tire casing. D. J. Demas, Pittsburgh, Pennsylvania.

1,261,027. Hose supporter. J. B. Hohmann, Eureka, California.

1,261,073. Veil, Z. V. Raalte, New York City.

1,261,120. Demountable rim. W. Gries, Newark, New Jersey.

1,261,221. Hose patch. L. B. Dutcher, Oswego, New York.

1,261,341. Segmental tire. S. Baader and A. Rieffel—both of Philadelphia, Pennsylvania.

1,261,392. Rubber heel. G. A. Huben, assignor of one-half to G. W. Post—both of Chicago, Illinois.

1,261,481. Fountain pen. G. F. Brandt, assignor to Moore Pen Co.—both of Boston, Massachusetts.

1,261,503. Atomizer. W. F. Figgis, Brooklyn, New York, assignor to Whitall-Tatum Co., New York City.

1,261,525. Detachable rubber heel for shoes. E. S. Helwitz, Brooklyn, New York.

1,261,546. Tire pressure gage. H. Jungjohann, Davenport, Iowa.

1,261,569. Heel for boots and shoes. W. J. Luxmoore, London, England.

1,261,605. Demountable rim. L. H. Perlman, New York City.

1,261,608. Nasal suction pump. F. W. Peterson, Minneapolis, Minnesota.

1,261,621. Tire protector. P. Richard, Detroit, Michigan.

1,261,676. Demountable traction rim for automobile wheels. H. P. Arndt, Amston, Connecticut, assignor of two-thirds to C. M. Ams, New York City.

1,261,706. Rubber finger attachment. J. B. Condley and J. G. Smith—both of Fresno, California.

ISSUED APRIL 9, 1918.

1,261,754. Pneumatic tire. E. K. Baker, assignor, by mesne assignments, to himself and C. G. Hawley—both of Chicago, Illinois.

1,261,821. Rubber and leather tire casing. A. M. Kobiolke, Kew, Victoria, Australia.

1,262,011. Tire tread. A. C. Bruce, Kerrisdale, British Columbia, Canada.

1,262,089. Cross-cut demountable rim. L. H. Perlman, New York City.

1,262,136. Combination garment protector. E. Tacon, Mobile, Alabama.

1,262,154. Tire protector. W. F. Zeitler, Washington, District of Columbia.

1,262,186. Cushion tire. W. Drury, London, England.

1,262,218. Game apparatus. H. Lindenberg, Jr., Woodcliffe on the Hudson, New Jersey.

1,262,296. Water-wings. W. K. Alther, Jersey City, New Jersey.

1,262,324. Auxiliary tire. C. E. Gould, Boyne City, Michigan.

1,262,332. Bust supporter. M. Hacker, Allenhurst, New Jersey.

1,262,358. Life-saving suit comprising a plurality of pneumatic tubes. J. Kopec, Elizabeth, New Jersey.

1,262,438. Fountain pen. C. W. Boman, assignor to Eagle Pencil Co.—both of New York City.

1,262,450. Sole for shoes, including an inflatable auxiliary insole. C. J. Christianson, San José, California.

1,262,451. Garment supporter. Richard T. Clarke, Columbus, Ohio.

1,262,458. Life-saving skirt of rubberized material. C. E. Crowell, assignor of one-half to E. L. Le Butt—both of Portland, Maine.

1,262,501. Resilient tire. A. Huetter, Boonton, New Jersey.

1,262,504. Tire fastening device. F. P. Johnson, Danville, Pennsylvania.

1,262,510. Pneumatic pillow. Ida Kelly, Waco, Texas.

1,262,532. Practice golf ball composed of light rubber made up of large air cells and having a thin, imperforate, integral cover of the same material. J. H. McElroy, Chicago, Illinois.

1,262,547. Fountain pen. B. T. Nedland, Hillsboro, North Dakota.

1,262,566. Tunnel mask. J. C. Rhodes, G. E. Guffey, and J. G. Sheehan, all of Danville, Kentucky.

ISSUED APRIL 16, 1918.

1,262,620. Child's garment supporter. D. Basch, assignor to I. B. Kleinert Rubber Co.—both of New York City.

1,262,804. Abdominal band and hose supporter for children. A. M. Jones and Z. Glimm, New York City.

1,262,818. Foot-ball head-gear. W. McGill, Evanston, Illinois.

1,262,953. Cushion tire. H. A. Huber, Ottawa, Ontario, Canada.

1,262,989. Inflatable surf toboggan. G. E. Silvernail, Galveston, Texas.

1,263,054. Guard for pneumatic tires. P. G. Giddens and C. M. Bass—both of Columbus, Georgia.

1,263,121. Demountable rim. C. C. Sanders, Grant, Oklahoma.

1,263,176. Puncture proof pneumatic tire. L. Wenzel, Jr., Pittsburgh, Pennsylvania.

1,263,260. Self-filling fountain pen. R. W. Lotz, Chicago, Illinois.

1,263,261. Self-filling fountain pen. R. W. Lotz, Chicago, Illinois.

1,263,264. Composite rubber heel. W. E. McKenna, Brooklyn, New York.

1,263,295. Pneumatic tire protecting cover. D. Urch, Portsmouth, New Hampshire, assignor of one-half to E. E. Tucker, Eliot, Maine.

1,263,302. Puncture healing inner tube. C. L. Witsaman, Summit county, assignor to the Firestone Tire & Rubber Co., Akron—both in Ohio.

1,263,304. Fountain sweeping broom. J. H. Wolf, Cincinnati, Ohio.

ISSUED APRIL 23, 1918.

1,263,356. Adjustable tire rim. R. B. Altenburg, Davenport, Iowa.

1,263,510. Demountable rim tool. O. L. Babcock, Winnebago, Nebraska.

1,263,517. Tire inflating device in combination with a tire tube. G. J. Bromhead, New York City.

1,263,555. Soft rubber pad for shoe heels. E. S. Helwitz, Brooklyn, New York.

1,263,585. Rubber ball. A. E. Meier, Chicago, Illinois.

1,263,599. Pneumatic tire valve. J. H. Poole, Bridgewater, assignor to A. Hamilton, trustee, Brockton—both in Massachusetts.

1,263,700. Resilient tire. R. H. Porteous, Passaic, New Jersey.

1,263,737. Tool for manipulating split rims. C. A. Boyd, Milwaukee, Wisconsin.

1,263,883. Pneumatic tire casing. A. H. Gruber, Evanston, Illinois.

1,263,907. Demountable mechanically resilient tire. M. Lisicwicz, Newark, New Jersey.

1,263,942. Eye-cleaner. O. C. Schroeder, Detroit, Michigan.

1,263,947. Composite cushioning non-inflatable cushion tire, including an outer, an intermediate and an inner section. W. Shomer and H. Friedman, Philadelphia, Pennsylvania.

1,264,003. Cartridge containing compressed or liquefied gas for inflating life-preserving belts, pneumatic tires, and other purposes. W. G. Brokaw, Paris, France.

1,264,060. Resilient tire. M. A. Green and J. N. Shaver, Rupert, Idaho.

1,264,100. Vehicle tire comprising a plurality of individual pneumatic resilient units. R. W. Linville, Oceanpark, California.

1,264,109. Body belt. J. A. Maguire, Trenton, New Jersey.

1,264,123. Wading boot. E. W. Pepper, Aberdeen, South Dakota.

1,264,127. A rubber shoe heel cushion. J. Pietzuch, Cincinnati, Ohio.

THE DOMINION OF CANADA.

ISSUED JANUARY 31, 1918.

181,362. Pneumatic tire. J. C. Barker, London, England.

181,409. Pneumatic tire. G. Ishihara, Tacoma, Washington, U. S. A.

181,413. Cushion tire. F. D. Law, Toronto, Ontario, Canada.

181,416. Rim tool. G. E. Lundberg, Kewanee, Illinois, U. S. A.

181,450. Wheel tire. J. Weinberg, Duluth, Minnesota, U. S. A.

181,671. Fountain brush. W. W. Halliday and A. Cooper, both of Glenmora, Louisiana, U. S. A.

181,672. Article for sharpening phonograph needles, employing layers of fabric and rubber over abrasive material. R. D. Sharp and W. W. Heineman, both of Denver, Colorado, U. S. A.

181,756. Fountain brush. L. A. West, Niagara Falls, Ontario.

181,816. Pneumatic tire. J. Blair, Jr., Rock Springs, Wyoming, U. S. A.

181,817. Retainer for rubber footwear. J. H. Brackin, Hockessin, Delaware, U. S. A.

181,834. Tire tool. J. W. Dyer, Detroit, Michigan, U. S. A.

181,936. Inner tube for pneumatic tires. The Pneumatic Cushion Inner Tube Co., assignee of J. P. Brophy—both of Boston, Massachusetts, U. S. A.

THE UNITED KINGDOM.

ISSUED APRIL 10, 1918.

113,327. Self-inflating life saving belt having cork-lined rubber or rubber-coated compartments. W. G. Brokaw, 41 Boulevard Haussmann, Paris.

Chemical Patents will be found on page 538. Machinery Patents on page 541.

ISSUED APRIL 17, 1918.

113,461. Ampoule, including a rubber bulb and a rubber cap. H. Cohen, 78 Cathedral Road, Cardiff.

113,555. Detachable rim for wheel tires. J. C. Barker, 14 St. Mary Axe, London.

ISSUED APRIL 24, 1918.

113,655. Diving dress. W. J. Mellersh-Jackson, 28 Southampton Buildings, London. Leavitt Diving Armor Co., Toledo, Ohio, U. S. A.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION).

485,554. (April 19, 1917.) Spiked rubber heels. F. A. Nolan.

485,560. (July 12, 1916.) Process of manufacturing a non-skid material. C. Pacchetti.

485,651. (May 30, 1917.) Improvements in rubber cushion heels. O. Mussinan.

485,743. (June 7, 1917.) Improvements in the manufacture of pneumatic tires. Meier, Blease, and Avon India Rubber Co.

485,744. (June 7, 1917.) Improvements in the manufacture of pneumatic tire casings. Meier, Blease, and Avon India Rubber Co.

485,778. (June 12, 1917.) Process of treating rubber, substitutes and similar substances. General Rubber Co.

485,798. (June 14, 1917.) Improvements in elastic wheels. J. Johnson.

485,905. (January 19, 1917.) Guard for pneumatic tires. C. A. Berger.

TRADE MARKS.

THE UNITED STATES.

No. 1,260,321. Method of mixing and compounding rubber. George W. Bulley, Chicago, Illinois.

101,683. The word VUL-TEX inside of a circle—composition soles and heels for shoes and boots. The Electric Rubber Reclaiming Co., Barberton, Ohio.

107,456. A conventionalized letter C crossed by an arrow pointing to the left—india rubber, ball rubber and paste rubber. African Association, Limited, Liverpool, England.

108,098. The word RUGHIDE—composition soles and heels. The Federal Rubber Co., Cudahy, Wisconsin.

108,443. The words AMERI CORD separated by a conventionalized monogram—elastic vehicle tires. The American Rubber & Tire Co., Akron, Ohio.

108,497. The word UNIVERSAL—inner tubes for rubber tires. Butler Bros., New York City.

109,222. Representation of Hercules upholding the word HERCULES—tire patch. Hercules Manufacturing Co., Oklahoma, Oklahoma.

108,557. The word TRIUMPH—automobile tires of rubber and leather, inner tubes, and piston rings. Times Square Auto Supply Co., Inc., New York City.

109,205. The words, THE RUBBER TIRE—publications of automobile accessory advertising in the form of printed folders or leaflets. M. E. Palmer, Topeka, Kansas.

THE UNITED KINGDOM.

378,449. The word BULLDOG—adhesive tape impregnated with Chatterton compound, or with other insulating preparations covered by Class 50. Lindsay & Williams, Limited, Medlock Works, 192 London Road, Manchester.

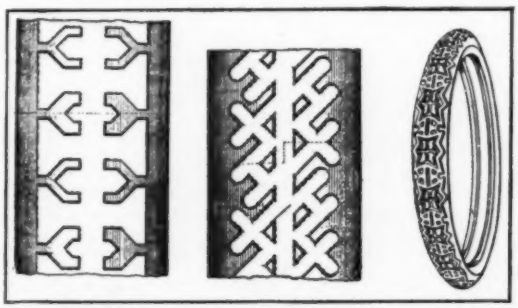
381,758. The word GIRCITE—soles and heels made of india rubber, or of a composition in which india rubber is the predominant material, for boots, all such soles and heels being sold separately from the boots. J. Spicer & Son, Limited, 50 Upper Thames street, London, E. C. 4.

382,106. The word RUBAPED—india rubber compositions for the soles and heels of boots and shoes. J. G. Ingram & Son, Limited, The London India Rubber Works, Felstead street, Hackney Wick, London, E. 9.

DESIGNS.

THE UNITED STATES.

51,898. Resilient tire. Term 14 years. Patented March 26, 1918. H. H. Hewitt, assignor to Hewitt Rubber Co.—both of Buffalo, New York.



51,898 51,899 51,975

51,899. Resilient tire. Term 14 years. Patented March 26, 1918. H. H. Hewitt, assignor to Hewitt Rubber Co.—both of Buffalo, New York.

51,975. Non-skid tire. Term 14 years. Patented April 16, 1918. W. A. Stevens, San Francisco, California.

GENEROUS ENDOWMENT BY MR. ACHELIS.

ON the fiftieth anniversary of the incorporation of Poppenhusen Institute, College Point, New York, and the centenary of the birth of its founder, Conrad Poppenhusen, which were observed with wartime simplicity in connection with the closing exercises and exhibition of the evening classes on May 6, a donation of $30,000 was made by Fritz Achelis, president of the American Hard Rubber Co., New York City. The announcement came as a pleasant climax to the address on the life of Conrad Poppenhusen, a pioneer in the manufacture of hard rubber goods in America, by William W. Weitling, vice-president of the American Hard Rubber Co.

The donation was made for the purpose of establishing a class in practical mechanics, so that pupils, after a course in mathematics and mechanical drawing and design, can finish with practical machine-shop work that will qualify them to become all-around machinists and tool makers. The money was divided into three equal parts of $10,000 each, the first to constitute a memorial fund in the name of A. D. Schlesinger, formerly general superintendent of the American Hard Rubber Co. and treasurer of the Conrad Poppenhusen Association; the second to constitute a memorial fund in the name of William Kiel, and the third to provide the necessary machinery and tool equipment. Only the income from the two memorial funds may be used, and one per cent of this is to be added to the principal annually.

POPPENHUSEN INSTITUTE.

Two other features of the exercises were of special interest. Herman A. MacNeil, the sculptor and a member of the board of control of the institute, contributed a beautiful commemorative medal. On the front appears an excellent profile of Conrad Poppenhusen and the words, "Founder Conrad Poppenhusen, 1818-1884." On the center of the reverse is the symbol of wisdom, an owl, with the words, "Science and Art," surrounded by the inscription, "Poppenhusen Institute Commemmorative Medal. Initiated 1918; a Tribute to the Founder for His Gift to College Point in 1868."

The dressmaking class presented a service flag bearing 169 stars in honor of students with the colors, two of whom have died in service.

MITSUI & CO., LIMITED, IN CEYLON.

It is stated that Mitsui & Co., Limited, has opened a branch at Colombo, Ceylon. The object of this latest expansion is reported to be the facilitating of matters with leading concerns with whom the Mitsui company has extensive dealings.

Review of the Crude Rubber Market.

Copyright, 1918.

NEW YORK.

GOVERNMENT control of crude rubber importations was announced by the War Trade Board on April 30, when an option and guaranty clause, effective May 1, was sent to the trade, to be inserted in the present rubber guarantee, whereby the Government optioned all standard grades of crude rubber at the following prices, c. i. f. New York: Standard smoked sheet, 62 cents; standard first quality First latex crêpe, 63 cents, and fine Para, 68 cents. These prices are to be maintained excepting, however, on rubber contracts in force prior to May 1, 1918.

The list of rubber sorts, other than standard grades, and the fixed prices effective May 14, 1918, will be found elsewhere in this issue. Balata, Pontianak, gutta percha and gutta siak are not included in the Government's plan of import and price regulation.

Confirming the announcement that appeared in this column last month the imports for three months beginning with May 1 have been limited to 25,000 tons, and with prices fixed for the standard grades, later followed by adjustment of the entire list, the crude rubber trade accepted the situation with equanimity.

Early in the month manufacturers were willing to buy against their respective quotas at the fixed prices, but holders refused to sell, as there was a scarcity of standard rubber. Later on active demand was in evidence for the intermediate grades that were quoted much higher than the normal differential for these sorts. By the time these prices were fixed it became evident that the manufacturers had bought to the limit of their allocations and that there was little free rubber in sight, consequently the market continued inactive and quiet until the close of the month.

LONDON AND LIVERPOOL STATISTICS.

The London and Liverpool imports for March were 5,703,100 pounds, value £698,415, compared with 13,247,000 pounds, value £1,545,779 for February. Reexports were 3,949,000 pounds, value £501,502 for March, compared with 3,317,000 pounds, value £431,926 for February.

NEW YORK SPOT QUOTATIONS.

Following are the New York spot quotations one year ago, one month ago, and May 27, the current date.

	June 1, 1917.	May 1, 1918.	May 27, 1918.
PLANTATION HEVEA—			
First latex crêpe }			
*Hevea first crêpe }	80 @	63 @	63 @
Amber crêpe No. 1	77½ @	62½ @	60 @
Amber crêpe No. 2	@	62 @	60 @
Amber crêpe No. 3	@	61 @	58 @
Amber crêpe No. 4	@	60 @	57 @
Brown crêpe, thick clean	74 @	60 @	60 @
Brown crêpe, thin clean	74 @	60 @	60 @
Brown crêpe, thin specky	@	57 @	50 @
Brown crêpe, rolled	@	50 @	44 @
Smoked sheet, ribbed standard quality }			
*Hevea ribbed smoked sheets }	80 @	62 @	62 @
Smoked sheet, plain standard quality }			
*Hevea plain or smooth smoked sheets }	78 @	66 @67	60 @
Unsmoked sheet, standard quality }	76½ @	66 @	61 @
*Hevea unsmoked sheets }	@	60 @	46 @
Colombo scrap, No. 1	@	58 @	44 @
BRAZILIAN PARAS—			
Upriver fine	74 @	68 @	68 @
Upriver medium	@	63 @	63 @
Upriver coarse	53 @	39 @	40 @
Upriver weak fine	@	**52½ @	56 @
Upper caucho ball	50½ @	38 @	40 @
Islands fine	@	58 @	59 @
Islands medium	@	**39 @	@
Islands coarse	34 @	28 @	27 @
Cametá	@	26 @	28 @
Lower caucho ball	@	35 @	36 @
Peruvian fine	70 @	**55 @	@
Tapajos fine	71 @	**57 @	@
AFRICANS—			
Accra flake, prime	31 @	**27 @	28 @
Niger flake, prime	31 @	**27 @	28 @
Benguela, extra No. 1, 28%	41 @	**29 @	33 @
Benguela, No. 2, 32½%	38 @	**26 @	29 @
Congo prime, black upper	64 @	**48 @	50 @
Congo prime, red upper	57 @	**46 @	48 @
Rio Nunez ball	66 @	@	55 @
Rio Nunez sheets and strings	64 @	@	@
Conakry niggers	@	@	@
Massai sheets and strings	64 @	**46 @47	55 @
CENTRALS—			
Castilloa block	@	45 @48	@
Corinto scrap	@	41 @	@
Esmeralda sausage	53 @	41 @41½	39 @
Central scrap	52 @	39 @	39 @
Central scrap and strip	@	36½ @	@
Central wet sheet	36 @	25 @	@
Guayule, 20% guarantee	30 @	33 @	35 @
Guayule, dry	45 @	40 @41	48 @
MANICOBAS—			
Ceara negro heads	49 @	42 @	40 @
Ceara scrap	39 @	35 @	34 @
Maniçoba special	42 @	39 @	42 @
Maniçoba extra	38 @	34 @	38 @
Maniçoba regular	32 @	36 @37	34 @
Mangabeira thin sheet	41 @	30 @	40 @
Mangabeira thick sheet	33 @	31 @	32 @
EAST INDIAN—			
Assam crêpe	76 @	**56 @57	**56 @57
Assam onions	71 @	**44 @	**44 @
Penang block scrap	52 @	37 @	**37 @
Borneo, No. 2	@	@	@
No. 3	@	@	@
BALATA—			
Block, Ciudad Bolivar	68 @	70 @71	69 @69½
Colombia	60 @	59 @	60 @
Panama	59 @	59 @60	59 @
Surinam sheet	95 @	90 @	**93 @
amber	96 @	91 @	94 @
PONTIANAK—			
Banjermassin	18 @	14½ @	**14¼ @15
Pressed block	20 @	23 @	**23 @
GUTTA PERCHA—			
Gutta Siak	20 @	24 @	**24 @
Red Macassar	2.00@3.00	2.25@3.00	**2.00@3.00

*Rubber Association of America nomenclature.
**Nominal.

RECLAIMED RUBBER.

Government control of crude rubber imports and the fixing of prices have not had any appreciable effect on the market for reclaim. While not generally known, it is a fact that reclaimers have not been largely favored by war conditions and with the knowledge that the crude rubber requirements of the manufacturers are well covered for the future there is small probability that the curtailment of rubber imports will benefit the reclaimers for some time.

NEW YORK QUOTATIONS.

MAY 27, 1918.

Subject to change without notice.

Corona No. 30 black	*lb.*	.19	@
white	*lb.*	.21	@
No. 312 hydro-carbon	*ton*	50.00	@
325 hydro-carbon	*ton*	65.00	@
Standard shoe reclaim	*lb.*	.15¼	@
tire reclaim	*lb.*	.18	@

COMPARATIVE HIGH AND LOW SPOT RUBBER PRICES.

	May. 1918.[1]	1917.	1916.
Plantation:			
First latex crêpe	$0.63@0.63	$0.80½@0.85	$0.65 @0.77
Smoked sheet ribbed	.62@ .62	.80½@ .85	.67 @ .76½
Paras:			
Upriver, fine	.68@ .68	.74 @ .76½	.67 @ .71½
Upriver, coarse	.38@ .42	.51½@ .54	.50 @ .54
Islands, fine	.56@ .59	....@....	.61½@ ...
Islands, coarse	.27@ .28	.34 @ .35	.31 @ .34
Cametá	.28@ .28	.37 @ .37½	.35½@ .38

[1] Figured only to May 27.

THE MARKET FOR COMMERCIAL PAPER.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York), advises as follows:

During May the demand for commercial paper has been rather light on account of the Liberty Loan, Red Cross and other matters taking up the attention of banks. The best rubber names are quoted at 6¼ to 6½ per cent, and those not so well known, 6¾ to 7 per cent.

WEEKLY RUBBER REPORT.

GUTHRIE & CO., LIMITED, Singapore, report [April 5, 1918]:

At the rubber auction held yesterday and to-day, there was a brisk demand, at somewhat improved prices, for all grades except low, barky crêpes. Although the top prices for Fine pale crêpe and Ribbed smoked sheet are unchanged at $97 and $92, respectively, the average prices were better than those paid last week, the improvement in Smoked sheet being about $4 per picul. Brown and clean dark crêpe were readily taken up at $1 to $2 above last week's prices. Of 1,110 tons catalogd, 857 tons were sold.

The following was the course of values:

	In Singapore per Picul.*	Sterling Equivalent per Pound in London.	Equivalent per Pound in Cents.
Sheet, fine ribbed smoked	$88@92	1/11 @1/11¾	37.40@39.10
Sheet, good ribbed smoked	75@87	1/ 8¼ @1/10¾	31.88@36.98
Sheet, plain smoked	61@74	1/ 5¼ @1/ 8	25.93@31.45
Sheet, ribbed unsmoked	@	@	@
Sheet, plain unsmoked	54@70	1/ 3⅞ @1/ 7¼	22.95@29.75
Crêpe, fine pale	94@97	2/ 0¼ @2/ 0⅞	39.95@41.23
Crêpe, good pale	80@93	1/ 9¼ @2/ 0⅛	34.00@39.53
Crêpe, fine brown	72@83	1/ 7⅝ @1/ 9⅞	30.60@35.27
Crêpe, good brown	63@75	1/ 5¾ @1/ 8¼	26.78@31.88
Crêpe, dark	55@67	1/ 4 @1/ 6¾	23.38@28.48
Crêpe, bark	30@57	/10¾ @1/ 4½	12.75@24.23
Scrap, virgin and pressed	40@..	1/ 0⅞ @..	17.00@.....
Scrap, loose	@	@	@

*Picul = 133⅓ pounds.
Quoted in S. S. dollars = 2/4 [56.7 cents.]

MARKET CABLE SERVICE FROM LONDON.

The following market report has been cabled from Aldens' Successors, Limited, London:

	Standard Crêpe.	Ribbed Smoked Sheets.	Market.
April 29	28½d.	27½d.	Firmer.
May 6	27½d.	26½d.	Dull.
May 14	27¼d.	26½d.	Nominal.
May 20			Holiday.

CRUDE RUBBER ARRIVALS AT THE PORT OF NEW YORK.

The following statistics are not complete, due to government orders prohibiting access to the records.

[*The Figures Indicate Weight in Pounds.*]

PARAS.

APRIL 7.—By the *Avaré*=Para.

	Fine.	Medium.	Coarse.	Caucho.	Cameta.	Totals.
H. A. Astlett & Co	12,000	4,000	.....	.....	.....=	16,000
Pell & Dumont	.....	.....	.....	22,400	.....=	22,400

MAY 11.—By the *Curvello*=Para.

Aldens' Successors, Ltd	11,400	350	.....	.....	.....=	11,750
Pell & Dumont	.....	.....	.....	.....	12,370=	12,370
H. A. Astlett & Co	135,000	6,000	50,000	90,000	.....=	281,000

MAY 16.—By the *Sergipe*=Para and Manaos.

Pell & Dumont	.....	.....	.....	33,075	.....=	33,075
Aldens' Successors, Ltd	1,600	350	500	14,000	.....=	16,450

By the *Gen. S. Smith*=Para.

Pell & Dumont	.....	.....	.....	[1]34,222	.....=	34,222

[1] Xingu ball.

ARRIVALS AT THE PORT OF NEW YORK.

PLANTATIONS.

TO NEW YORK.

	Pounds.
APRIL 30.—By the *City of Bristol*=Far East:	
Fred. Stern & Co	17,920
MAY 9.—By the *Roepat*=Far East:	
Aldens' Successors, Limited	48,300
J. T. Johnstone & Co	115,808
MAY 14.—By the *Khiva*=London:	
Aldens' Successors, Limited	569,500
OVERLAND FROM FAR EAST.	
J. T. Johnstone & Co	1,499,303
Rubber Trading Co	763,990
Fred. Stern & Co	683,200

BALATA.

MARCH 18.—By the *Prins der Nederlanden*=Paramaribo:	
William Schall & Co	1,011

AFRICANS.

MAY 4.—By the *Carpathia*=Liverpool:	
Rubber Trading Co	22,400
MAY 15.—By the *Saxonia*=Liverpool:	
Rubber Trading Co	13,440

CRUDE RUBBER ARRIVALS AT PACIFIC COAST AS STATED BY SHIPS' MANIFESTS.[1]

SEATTLE AND TACOMA.

PLANTATIONS.

[*Figured 135 pounds net to the case.*]

TO AKRON, OHIO.

	Pounds.	
[2]APRIL 20.—By the *Luise Nielsen*=Singapore:		
Goodyear Tire & Rubber Co	776,115	
APRIL 22.—By the *Thordis*=Manila:		
Goodyear Tire & Rubber Co	38,610	
APRIL 24.—By the *Matsura Maru*=Singapore:		
Firestone Tire & Rubber Co	392,175	
APRIL 28.—By the *Protesilaus*=Yokohama:		
Firestone Tire & Rubber Co	140,130	
APRIL 29.—By the *Kosoku Maru*=Singapore:		
Aldens' Successors, Limited	33,075	
Swinehart Tire & Rubber Co	112,725	
Goodyear Tire & Rubber Co	1,144,935	1,290,735
MAY 2.—By the *Canada Maru*=Yokohama:		
Goldman, Sacks & Co	6,750	

[1] Footnote.—The figures under this head and under Crude Rubber Arrivals at Pacific Coast as Reported, have been obtained from different sources; repetitions may, therefore, occur.
[2]Arrived at Tacoma.

TO NEW YORK.

	Pounds.	
[2]APRIL 20.—By the *Luise Nielsen*=Singapore:		
Edward Maurer Co., Inc	176,580	
Robinson & Co	294,435	
L. Littlejohn & Co	126,630	
Aldens' Successors, Limited	43,875	
William H. Stiles	47,520	
Arthur Meyer & Co	3,240	
United Malaysian Rubber Co	101,520	
United States Rubber Co	90,855	
Poel & Kelly	359,505	
W. R. Grace & Co	10,665	1,254,825
APRIL 22.—By the *Thordis*=Manila:		
Aldens' Successors, Limited	17,415	
Robinson & Co	9,720	
W. R. Grace & Co	8,640	
Charles T. Wilson Co., Inc	2,160	
Meyer & Brown	63,990	
F. R. Henderson & Co	87,885	
L. Littlejohn & Co	115,425	
William H. Stiles	93,150	398,385
APRIL 24.—by the *Matsura Maru*=Singapore:		
General Rubber Co	93,825	
Fred. Stern & Co	56,835	
Robinson & Co	45,495	
Aldens' Successors, Limited	135	
Poel & Kelly	50,625	
L. Littlejohn & Co	80,730	
William H. Styles	7,830	
W. R. Grace & Co	8,100	
Van Siclen & Co	24,705	
Curry McPhillips	98,955	
Hadden & Co	45,630	
I. T. Johnstone & Co	107,865	
Robert Badenhop & Co	86,400	
Hagemeyer Trading Co	45,360	
Charles T. Wilson Co., Inc	32,400	
Pell & Dumont	23,625	
F. R. Henderson & Co	278,100	
Meyer & Brown	174,420	1,261,035
APRIL 26.—By the *Oridono Maru*=Yokohama:		
F. R. Henderson & Co	60,750	
Smith & Schipper	54,000	
Robinson & Co	77,895	192,645
APRIL 28.—By the *Protesilaus*=Yokohama:		
Poel & Kelly	341,280	
F. R. Henderson & Co	265,140	
Robinson & Co	22,680	629,100
APRIL 29.—By the *Kosoku Maru*=Singapore:		
[2]Edward Maurer Co., Inc	97,875	
L. Littlejohn & Co	116,235	
F. R. Henderson & Co	181,710	
Fred. Stern & Co	137,970	
Aldens' Successors, Limited	30,240	
J. T. Johnstone & Co	353,835	
Robinson & Co	45,630	
Rubber Association of America, Inc.	11,340	
William H. Stiles	14,580	
Mexican Crude Rubber Co	8,100	997,515
MAY 2.—By the *Nippon*=Hongkong:		
Hadden & Co		689,175
MAY 2.—By the *Canada Maru*=Yokohama:		
Aldens' Successors, Limited	30,645	
William H. Stiles	12,150	42,795

	Pounds.	
MAY 12.—By the *Saikai Maru*=Colombo:		
(Arrived at Vancouver.)		
Poel & Kelly		590,760

[1]150 cases shortshipped.

TO SEATTLE, WASH.

[2]APRIL 20.—By the *Luise Nielsen*=Singapore:		
Aldens' Successcrs, Limited	268,920	
William H. Stiles	23,220	
Robinson & Co	78,705	
Poel & Kelly	165,780	
W. R. Grace & Co	8,100	
L. Littlejohn & Co	89,910	
Michelin Tire Co	20,790	
Goodyear Tire & Rubber Co	162,135	
The B. F. Goodrich Co	29,430	
East Asiatic Co	7,560	854,550
APRIL 22.—By the *Thordis*=Manila:		
F. R. Henderson & Co	4,590	
Goodyear Tire & Rubber Co	70,200	
Robinson & Co	5,265	
Edward Maurer & Co	46,845	126,900
APRIL 24.—By the *Matsura Maru*=Singapore:		
J. T. Johnstone & Co	112,860	
Michelin Tire Co	22,410	
Poel & Kelly	129,735	
Goodyear Tire & Rubber Co	99,090	
Raw Products Co	20,115	
W. R. Grace & Co	59,130	
Fred. Stern & Co	149,445	
[2]Arrived at Tacoma.		
Aldens' Successors, Limited	51,435	
L. Littlejohn & Co	241,110	
The B. F. Goodrich Co	47,250	
East Asiatic Co	45,765	
F. R. Henderson & Co	15,120	
Meyer & Brown	28,350	
Robinson & Co	103,680	1,125,495
APRIL 26.—By the *Oridono Maru*=Yokohama:		
Raw Products Co	21,735	
F. R. Henderson & Co	7,965	
Fred. Stern & Co	127,440	
L. Littlejohn & Co	147,015	
J. T. Johnstone & Co	148,365	452,520
APRIL 28.—By the *Protesilaus*=Yokohama:		
The B. F. Goodrich Co	91,665	
Balfour, Guthrie & Co	25,245	
W. R. Grace & Co	72,900	
Rubber Association of America, Inc.	167,940	
Frank Waterhouse & Co	3,105	360,855
APRIL 29.—By the *Kosoku Maru*=Singapore:		
L. Littlejohn & Co	99,495	
Poel & Kelly	147,150	
The B. F. Goodrich Co	98,280	
Curry McPhillips	31,860	
Goodyear Tire & Rubber Co	6,480	
Rockhill & Vietor	189,000	
Aldens' Successors, Limited	15,795	
Robinson & Co	15,390	
William H. Stiles	23,085	
J. T. Johnstone & Co	130,950	
W. R. Grace & Co	7,425	764,910

		POUNDS.
MAY 2.—By the *Nippon*=Hongkong:		
The B. F. Goodrich Co.		1,337,850
MAY 2.—By the *Canada Maru*=Yokohama:		
Edward Maurer & Co.	7,830	
Poel & Kelly	19,440	
Fred. Stern & Co.	18,495	45,765
MAY 13.—By the *Inaba Maru*=Kobe:		
Rubber Association of America, Inc.		159,840
TO WATERTOWN, MASS.		
APRIL 24.—By the *Matsura Maru*=Singapore: (Via Vancouver.)		
Hood Rubber Co.		386,775
TO KITCHENER, ONTARIO.		
APRIL 24.—By the *Matsura Maru*=Singapore: (Via Vancouver.)		
Canadian Consolidated Rubber Co. (Limited)		188,730
TO MONTREAL, QUEBEC.		
APRIL 24.—By the *Matsura Maru*=Singapore: (Via Vancouver.)		
Canadian Consolidated Rubber Co., Limited		68,310
TO TORONTO, ONTARIO.		
APRIL 24.—By the *Matsura Maru*=Singapore: (Via Vancouver.)		
Goodyear Tire & Rubber Co.	46,440	
Gutta Percha & Rubber, Limited	27,000	73,440
TO NEW YORK.		
[4]APRIL 20.—By the *Luise Nielsen*=Singapore:		
Equitable Trust Co.—		
gutta percha	1,000	
untreated gutta jelutong	62,500	
untreated gutta jangkar	5,750	
Chemical National Bank—		
untreated gutta jelutong	329,000	
Rubber Association of America—		
gutta jangkar	44,500	
gutta siak	143,750	586,500
TO SEATTLE, WASH.		
[2]APRIL 20.—By the *Luise Nielsen*=Singapore:		
L. Littlejohn & Co. (gutta jelutong)		189,750

[2] Arrived at Tacoma.

SAN FRANCISCO.[1]

[*Figured 135 pounds net to the case.*]

	POUNDS.	
APRIL 25.—By the *Colombia*=Hongkong:		
Aldens' Successors, Limited	270	
Frank Dow & Co.	8,100	
Arnold & Zeiss	675	
Arthur Meyer & Co.	1,080	
Goodyear Tire & Rubber Co.	270	
Firestone Tire & Rubber Co.	76,680	
Pacific Mail S. S. Co.	4,050	
Robinson & Co.	3,240	
W. R. Grace & Co.	41,715	
Dunlop Tire & Rubber Co.	3,240	139,320
APRIL 27.—By the *Kotsu Maru*=Singapore:		
The B. F. Goodrich Co.	388,125	
Mansfield Tire & Rubber Co.	33,885	
Firestone Tire & Rubber Co.	191,295	
Poel & Kelly	310,500	
L. Littlejohn & Co.	133,515	
Frank B. Ross & Co.	47,250	
Edward Maurer Co., Inc.	201,960	
Smith & Schipper	55,350	
Robinson & Co.	46,035	
William H. Stiles	25,920	
Rubber Trading Co.	31,320	
J. T. Johnstone & Co.	45,225	
Goodyear Tire & Rubber Co.	10,125	
Arnold & Zeiss	29,565	
Mitsui & Co., Limited	174,420	
W. R. Grace & Co.	3,915	
Aldens' Successors, Limited	68,310	
Charles T. Wilson Co., Inc.	4,050	
Mexican Rubber Co.	11,205	
Balfour, Guthrie & Co.	15,120	1,827,090
MAY 5.—By the *Tjisondari*=Soerabaia:		
J. T. Johnstone & Co.	71,145	
Goodyear Tire & Rubber Co.	41,580	
Poel & Kelly	40,095	
Rubber Association of America, Inc.	178,740	
W. R. Grace & Co.	153,900	485,460
[3]MAY 6.—By the *China*=Hongkong:		
Rubber Trading Co.	45,495	
Winter, Son & Co.	31,320	
William H. Stiles	3,240	
W. R. Grace & Co.	25,110	
Poel & Kelly	296,730	
Edward Maurer Co., Inc.	39,150	
Peninsula Trading Co.	115,290	
Rubber Association of America, Inc.	31,590	587,925

[1] Footnote.—The figures under this head and under Crude Rubber Arrivals at Pacific Coast as Reported, have been obtained from different sources; repetitions may, therefore, occur.

[2] 81 cases shortshipped.

		POUNDS.
[3]MAY 6.—By the *Tenyo Maru*=Hongkong:		
Edward Maurer Co., Inc.	27,135	
J. T. Johnstone & Co.	314,010	
Rubber Trading Co.	5,265	
Poel & Kelly	37,395	
Robinson & Co.	26,730	410,535
MAY 14.—By the *Colusa*=Hongkong:		
Goodyear Tire & Rubber Co.		1,001,025
MAY 18.—By the *Princes Juliana*=Batavia:		
Rubber Association of America, Inc.	634,500	
The B. F Goodrich Co.	83,565	
Mitsui & Co., Limited	47,520	
Goodyear Tire & Rubber Co.	100,575	
Firestone Tire & Rubber Co.	61,560	
J. D. Spreckels & Co.	103,545	1,031,265

[3] 902 cases shortshipped.

GUTTA.

APRIL 27.—By the *Kotsu Maru*=Singapore:		
Berizzi Bros. (gutta jelutong)	88,750	
United Malaysian Rubber Co.—		
gutta jangkar	11,750	
gutta katiau	14,000	
gutta siak	21,750	136,250
MAY 18.—By the *Princes Juliana*=Batavia:		
First National Bank (gutta jelutong)	18,000	
Rubber Association of America, Inc. (gutta percha)	80,000	98,000

CRUDE RUBBER ARRIVALS AT PACIFIC COAST AS REPORTED.

PLANTATIONS.

NO DATES GIVEN.

	POUNDS.
By the *Nippon Maru*=Singapore:	
H. A. Astlett & Co.	89,000
Hagemeyer Trading Co.	77,280
By the *Luise Nielsen:*	
Pell & Dumont	33,600
By the *Matsura Maru:*	
Pell & Dumont	33,600
By the *Tenpaisan Maru:*	
Hagemeyer Trading Co.	56,000
By the *Empress of Russia:*	
Hagemeyer Trading Co.	33,600
By the *Transvaal:*	
Hagemeyer Trading Co.	13,440
By the *Thordis:*	
Hagemeyer Trading Co.	8,960
By the *Van Cloon:*	
Hagemeyer Trading Co.	28,000

CUSTOM HOUSE STATISTICS.

PORT OF BOSTON, MASSACHUSETTS.—MARCH, 1918.

IMPORTS:	POUNDS.	VALUE.
India rubber	314,900	$154,285
Rubber scrap	26,555	970
Manufactures of india rubber		3,428
Total		$158,683

PORT OF CHICAGO, ILLINOIS.—APRIL, 1918.

IMPORTS:	POUNDS.	VALUE.
Manufactures of india rubber		$1,338

PORT OF CLEVELAND, OHIO.—APRIL, 1918.

IMPORTS:	POUNDS.	VALUE.
India rubber	808,984	$371,018
Manufactures of india rubber		1,253
Total		$372,271

PORT OF THE DISTRICT OF MASSACHUSETTS.—APRIL, 1918.

EXPORTS:	POUNDS.	VALUE.
Belting:		
To—		
Canada		$62
Rubber boots—*pairs:*		
To—		
England	6,750	$15,680
Canada	1,344	2,775
Newfoundland	48	154
Totals	8,142	$18,609
Rubber shoes—*pairs:*		
To—		
England	8,050	$18,740
Canada	144	93
Cuba	2,752	2,588
Totals	10,946	$21,421
Automobile tires:		
To—		
Canada		$18
Other rubber tires:		
To—		
Canada		$15
Druggists' sundries:		
To—		
Canada		$255
Cuba		5,819
Total		$6,074
Other manufactures of india rubber:		
To—		
England		$359
Canada		543
Newfoundland		814
Cuba		5,819
Total		$7,535

PORT OF THE DISTRICT OF MICHIGAN, MICH.—MARCH, 1918.

IMPORTS:	POUNDS.	VALUE.
Manufactures of india rubber		$125
EXPORTS:		
Rubber scrap	23,229	$1,659
Automobile tires		2,535
Belting, hose and packing		2,251
All other manufacturers of india rubber		11,496
Total		$17,941

PORT OF SAN FRANCISCO, CALIFORNIA—MARCH, 1918.

EXPORTS:	POUNDS.	VALUE.
India rubber	5,511,274	$3,341,589
Gutta percha	7,053	430
Gutta jelutong (Pontianak)	47,765	1,964
Rubber scrap	18,073	454
Manufactures of india rubber		11
Total		$3,344,448
EXPORTS:		
India rubber boots.....*pairs*	25	$64
India rubber shoes.....*pairs*	8,321	7,227
Automobile tires		281,885
Other tires		6,289
Belting, hose and packing		33,657
Druggists' sundries		2,241
All other manufactures of india rubber		28,396
Total		$359,759

PORTS OF SEATTLE AND TACOMA, WASHINGTON—MARCH, 1918.

EXPORTS:	POUNDS.	VALUE.
India rubber	12,109,862	$6,269,401
Gutta jelutong (Pontianak)	127,680	12,768
Gutta Siak	67,604	9,206
Totals	12,305,146	$6,291,375
EXPORTS:		
India rubber boots.....*pairs*	85	$447
India rubber shoes.....*pairs*	9,640	11,638
Automobile tires		12,775
Other tires		782
Belting, hose and packing		6,148
Druggists' sundries		521
All other manufactures of india rubber		7,856
Total		$40,167

RUBBER STATISTICS FOR THE UNITED STATES.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	March, 1918.	
UNMANUFACTURED—*free:*	POUNDS.	VALUE.
India rubber:		
From—		
France	43,851	$16,315
Portugal	32,469	16,235
United Kingdom	336,649	164,854
Central America	75,513	29,525
Mexico	63,609	20,809
Brazil	678,654	206,744
Peru	5,164	2,530
Other South America	243,213	107,147
British East Indies	22,907,284	12,093,316
Dutch East Indies	3,442,734	1,804,232
Other countries	21,970	9,746
Totals	27,851,110	$14,471,453

MANUFACTURED—*free*	March, 1918. POUNDS.	VALUE.
Balata	116,713	$72,021
Guayule gum	4,700	2,162
Gutta jelutong	811,044	66,125
Gutta percha	19,564	1,910
Totals	28,803,131	$14,613,671
Rubber scrap	1,050,490	$80,181
Totals, unmanufactured	29,853,621	$14,693,852
Chicle ...*dutiable*	580,803	$370,503
MANUFACTURED—*dutiable:*		
Manufactures of india rubber and gutta percha	.....	$28,485
India rubber substitute	.....	29,127

EXPORTS OF DOMESTIC MERCHANDISE.

MANUFACTURED—	March, 1918. POUNDS.	VALUE.
Automobile tires:		
To—		
France	.....	$71,251
United Kingdom	.....	29,328
Canada	.....	121,169
Mexico	.....	74,662
Cuba	.....	30,074
Argentina	.....	31,520
Brazil	.....	2,074
British India	.....	8,498
Dutch East Indies	.....	23,174
Australia	.....	57,588
New Zealand	.....	128,264
Philippine Islands	.....	170,915
British South Africa	.....	60,742
Other countries	.....	125,372
Total	.....	$934,631
All other tires	.....	$37,839
Scrap and old rubber	406,160	33,631
Reclaimed rubber	434,877	75,314
Belting, hose and packing	.....	284,786
Rubber boots ...*pairs*	32,835	100,576
Rubber shoes ...*pairs*	59,729	50,555
Druggists' rubber sundries	.....	37,117
All other manufactures of india rubber	.....	296,303
Total, manufactured	.....	$1,850,752
Fountain Pens ...*Number*	5,789	$5,122

EXPORTS OF FOREIGN MERCHANDISE.

UNMANUFACTURED—	March, 1918. POUNDS.	VALUE.
Balata	159,693	$106,194
Gutta percha	8,297	2,500
India rubber	1,041,492	503,396
Totals, unmanufactured	1,209,482	$612,090
MANUFACTURED—		
Gutta percha	.....	$22
India rubber	.....	40
Substitutes, elasticon, etc.	.....	661
Total, manufactured	.....	$723

EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES.

MANUFACTURED—	March, 1918. POUNDS.	VALUE.
To—		
Alaska:		
Belting, hose and packing	.....	$2,372
Boots and shoes...*pairs*	4,784	15,438
Other rubber goods	.....	22,441
Total	.....	$40,251
To—		
Hawaii:		
Belting, hose and packing	.....	$7,830
Automobile tires	.....	40,777
Other tires	.....	2,490
Other rubber goods	.....	8,476
Total	.....	$59,573
To—		
Philippine Islands:		
Belting, hose and packing	.....	$16,441
Boots and shoes...*pairs*	29,314	25,935
Tires	.....	188,528
Other rubber goods	.....	22,476
Total	.....	$253,380

MANUFACTURED—	March, 1918. POUNDS.	VALUE.
To—		
Porto Rico:		
Belting, hose and packing	.....	$3,983
Automobile tires	.....	47,902
Other tires	.....	889
Other rubber goods	.....	8,197
Total	.....	$60,971

STATISTICS OF CRUDE AND MANUFACTURED RUBBER AT THE PORT OF NEW YORK.

IMPORTS.

UNMANUFACTURED—*free:*	March, 1918. POUNDS.	VALUE.
Crude rubber:		
From—		
France	43,851	$16,315
Portugal	32,469	16,235
England	336,649	164,854
Costa Rica	2,786	1,575
Guatemala	1,143	286
Nicaragua	18,241	5,974
Panama	48,055	19,045
Salvador	5,288	2,645
Mexico	54,449	17,914
Trinidad	6,771	2,241
Other British West Indies	434	216
Cuba	4,390	1,452
Brazil	678,654	206,744
Colombia	115,864	54,174
Ecuador	88,881	30,813
British Guiana	21,231	14,554
Dutch Guiana	4,054	2,421
Peru	5,164	2,530
Uruguay	1,367	642
Venezuela	7,989	3,173
British India	59,740	36,650
Straits Settlements	3,998,964	2,023,989
Other British East Indies	701,590	347,712
Dutch East Indies	1,343,633	627,125
Philippine Islands	10,375	5,837
Totals	7,592,032	$3,605,116
Gutta percha:		
From—		
Dutch East Indies	12,511	$1,480
Gutta jelutong:		
From—		
Straits Settlements	506,217	$43,836
Other British East Indies	28,000	2,800
Dutch East Indies	101,382	4,757
Totals	635,599	$51,393
Guayule:		
From—		
Colombia	4,700	$2,162
Balata:		
From—		
Panama	24,750	$9,715
Colombia	26,611	10,541
British Guiana	38,990	32,095
Dutch Guiana	17,219	14,211
Venezuela	9,143	5,459
Totals	116,713	$72,021
India rubber scrap:		
From—		
France	91,175	$5,384
England	785,880	67,149
Costa Rica	200	14
Panama	5,000	409
British West Indies	300	85
Cuba	36,854	2,176
Totals	919,409	$75,217
Totals, unmanufactured	9,280,964	$3,807,389
MANUFACTURED—*dutiable:*		
Gutta percha:		
From—		
England	.....	$5,781
India rubber:		
From—		
France	.....	$329
England	.....	13,641
Scotland	.....	412
Canada	.....	873
Japan	.....	2,170
Total	.....	$17,425
India rubber substitutes:		
From—		
Straits Settlements	.....	$19,921

EXPORTS OF DOMESTIC MERCHANDISE.

MANUFACTURED—	March, 1918. POUNDS.	VALUE.
Automobile tires:		
To—		
France	.....	$71,251
Italy	.....	684
England	.....	29,328
Panama	.....	8,992
Mexico	.....	29,226
Jamaica	.....	5,373
Trinidad	.....	6,228
Cuba	.....	25,615
Argentina	.....	31,520
Brazil	.....	2,074
Chile	.....	30,944
Colombia	.....	4,332
Ecuador	.....	2,405
British Guiana	.....	5,670
Peru	.....	7,192
Uruguay	.....	5,760
Venezuela	.....	5,711
British India	.....	8,498
Straits Settlements	.....	3,507
Other British East Indies	.....	9,350
Japan	.....	2,148
Philippine Islands	.....	29,603
British South Africa	.....	60,742
Other countries	.....	17,384
Total	.....	$403,537
Other tires	.....	$22,794
Reclaimed rubber	150	30
Belting	.....	180,277
India rubber boots...*pairs*	25,503	68,338
India rubber shoes...*pairs*	21,258	11,085
Druggists' sundries	.....	24,421
Other manufactures of india rubber	.....	166,832
Total	.....	$877,314

EXPORTS OF FOREIGN MERCHANDISE.

UNMANUFACTURED—	March, 1918. POUNDS.	VALUE
Balata:		
To—		
England	159,693	$106,194
Gutta percha:		
To—		
England	8,297	$2,500
India rubber:		
To—		
Cuba	20,242	$12,228
Australia	22,400	13,700
Totals	42,642	$25,928

UNITED KINGDOM RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.

UNMANUFACTURED—	March, 1918. POUNDS.	£
Crude rubber	6,166,000	747,328
Waste and reclaimed rubber	30,300	344
Gutta percha	713,328	119,681
Totals	6,909,628	867,353
MANUFACTURED—		
Boots and shoes...*doz. pairs*	5,305	59,876
Automobile tires and tubes	.....	95,215
Motorcycle tires and tubes	.....	1,459
Cycle tires and tubes	.....	2,479
Tires not specified	.....	160
Total	.....	159,189

EXPORTS OF DOMESTIC MERCHANDISE.

UNMANUFACTURED—	March, 1918. POUNDS.	£
Waste and reclaimed rubber	890,500	20,341
MANUFACTURED—		
Apparel, waterproofed	.....	33,519
Boots and shoes...*doz. pairs*	.....	9,156
Insulated wire	.....	5,699
Automobile tires and tubes	.....	109,492
Motorcycle tires and tubes	.....	8,352
Cycle tires and tubes	.....	29,319
Tires not specified	.....	8,564
Other manufactures of india rubber	.....	138,520
Total	.....	342,621

EXPORTS—FOREIGN AND COLONIAL.

UNMANUFACTURED—	March, 1918. POUNDS.	£
Crude rubber	4,177,700	530,061
Gutta percha	5,264	428
Totals	4,182,964	530,489
MANUFACTURED—		
Apparel, waterproofed	.....	32
Boots and shoes...*doz. pairs*	9	13
Automobile tires and tubes	.....	18,143
Motorcycle tires and tubes	.....	158
Cycle tires and tubes	.....	691
Tires not specified	.....	282
Total	.....	19,319

LONDON AND LIVERPOOL RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.

	March, 1918.	
UNMANUFACTURED—	POUNDS.	£
Crude rubber:		
At—		
London	1,673,900	200,580
Liverpool	4,029,200	497,835
Totals	5,703,100	698,415
Waste and reclaimed rubber:		
At—		
London	4,600	52
Liverpool	7,500	96
Totals	12,100	148

EXPORTS.

Waste and reclaimed rubber:		
From—		
London	650,600	13,478
Liverpool	136,300	4,454
Totals	786,900	17,932

REEXPORTS.

Crude rubber:		
From—		
London	2,757,000	337,261
Liverpool	1,192,000	164,241
Totals	3,949,000	501,502

RUBBER STATISTICS FOR ITALY.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	Twelve Months Ended December, 1917.	
UNMANUFACTURED—	POUNDS.	LIRE.
India rubber and gutta percha —raw and reclaimed:		
From—		
Great Britain	2,466,860	.....
India and Ceylon	4,038,320	.....
Straits Settlements	1,497,320	.....
French African colonies	510,400	.....
Belgian Congo	268,620	.....
Brazil	4,373,820	.....
Other countries	324,500	.....
Totals	13,479,840	55,144,800
Rubber scrap	2,048,860	931,300
MANUFACTURED—		
India rubber and gutta percha —threads:		
From—		
Great Britain	28,380	.....
United States	56,760	.....
Other countries	2,640	.....
Totals	87,780	798,000
India rubber and gutta percha —sheets:		
Cut sheet	3,740	29,750
Elastic fabric	7,040	16,000
Other kinds, including hard rubber	60,720	196,620
India rubber and gutta percha —tubes:		
From cut sheet	220	1,850
Elastic fabric	14,300	45,000
Other forms	1,540	5,600
Belting	101,640	369,600
Rubber coated fabrics— pieces:		
For carding combs	94,380	.....
Other forms:		
From—		
Great Britain	11,220	.....
United States	21,560	.....
Other countries	3,740	.....
Totals	36,520	215,800
Boots and shoes—*pairs:*		
From—		
France	11,019	.....
United States	31,666	.....
Other countries	245	.....
Totals	42,930	279,045
Elastic webbing:		
From—		
France	45,760	.....
Great Britain	13,640	.....
United States	5,940	.....
Totals	65,340	504,900
Clothing and articles for travel	2,200	24,000
Manufactures of india rubber and gutta percha— n. e. s.:		
From cut sheet	11,880	118,800
Elastic fabric:		
From—		
France	59,620	.....
Great Britain	177,980	.....
Other countries	18,480	.....
Totals	256,080	1,105,800
Tires and tubes:		
From—		
France	892,320	.....
Great Britain	427,680	.....
Other countries	29,040	.....
Totals	1,349,040	9,565,920
Other rubber manufactures:		
From—		
France	192,060	.....
Great Britain	413,820	.....
United States	488,400	.....
Other countries	1,100	.....
Totals	1,095,380	3,983,200
Total imports	.....	73,776,210

EXPORTS OF CRUDE AND MANUFACTURED RUBBER.

	Twelve Months Ended December, 1917.	
UNMANUFACTURED—	POUNDS.	LIRE.
India rubber and gutta percha —raw and reclaimed:		
To—		
Spain	340,780	.....
United States	635,580	.....
Totals	976,360	1,331,400
MANUFACTURED—		
India rubber and gutta percha —threads:		
To—		
France	17,820	.....
Great Britain	7,040	.....
Spain	12,760	.....
Switzerland	4,620	.....
Argentina	3,960	.....
Other countries	1,760	.....
Totals	47,960	414,200
India rubber and gutta percha —sheets:		
Cut sheet	1,320	10,200
Elastic fabric	6,820	18,600
Insulated rubber	440	700
Other kinds, including hard rubber	18,260	70,500
India rubber and gutta percha —tubes:		
From cut sheet	1,540	13,300
Elastic fabric	69,080	204,100
Other forms	67,540	230,250
Belting	2,640	8,640
Rubber coated fabrics— pieces	88,620	221,000
Elastic webbing—		
To—		
France	6,380	.....
Greece	44,000	.....
Spain	21,120	.....
Switzerland	87,120	.....
Egypt	14,960	.....
Argentina	63,140	.....
Brazil	140,360	.....
Chile	17,160	.....
Cuba	14,740	.....
Other countries	38,940	.....
Totals	447,920	3,257,600
Clothing and articles for travel	8,580	89,700
Manufactures of india rubber and gutta percha— n. e. s.:		
From cut sheet:		
To—		
Great Britain	880	.....
Spain	2,860	.....
Argentina	14,520	.....
Uruguay	1,980	.....
Other countries	880	.....
Totals	21,120	192,000
Elastic fabric	38,940	159,300
Tires and tubes:		
From—		
France	713,680	.....
Great Britain	1,661,880	.....
Switzerland	3,300	.....
India and Ceylon	499,620	.....
Straits Settlements	424,380	.....
Australia	31,680	.....
Argentina	310,420	.....
Brazil	246,400	.....
Other countries	343,200	.....
Totals	4,234,560	19,921,680
Other rubber manufactures:		
To—		
France	46,420	.....
Great Britain	36,960	.....
Spain	7,480	.....
Switzerland	54,120	.....
Egypt	3,740	.....
Argentina	90,860	.....
Brazil	36,080	.....
Uruguay	18,480	.....
Other countries	36,080	.....
Totals	330,220	1,350,900
Total exports	.....	27,494,120

The nominal value of a lira is $0.193.

THE MARKET FOR COTTON AND OTHER FABRICS.

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NEW YORK.

AMERICAN cotton recovered somewhat from the decline that followed April's liquidation, but market conditions were nervous and unsettled for the greater part of the past month. Favorable weather conditions, reported later in the month, checked the buying movement and prices declined. On May 27, middling spot cotton, was quoted 29.05 cents.

EGYPTIAN COTTON.—That the situation in this staple has improved is shown by the arrival last month of a shipment of 12,000 bales or 9,000,000 pounds of Egyptian cotton, appraised at $5,500,000, the largest importation, in value, ever made.

SEA ISLAND COTTON.—The Southern markets have been very quiet and quotations unchanged. Reports from the growing crop are unfavorable and estimates for next season's yield range from 30,000 to 40,000 bales.

MECHANICAL DUCK.—Government priority orders continue to occupy more than 60 per cent of the total production, and consequently contract deliveries to rubber manufacturers are frequently slow. Civilian business in spot stocks is almost negligible.

RAINCOAT FABRICS.—The civilian raincoat business has been very dull for the reason that manufacturers who are not working on a government contract for slickers are trying to secure one, and are not bothering with small raincoat orders. Although raw cotton has dropped considerably, the prices of finished cotton piece goods are higher than ever, owing to the great scarcity of goods, and the refusal of mills to lower prices on this account.

TIRE FABRICS.—The tire fabric mills are only running at about 80 per cent of their normal capacity, due to shortage of labor and necessary supplies. Government requirements exact about 60 per cent of this curtailed output, leaving only 20 per cent for the production of tire fabrics for civilian purposes. Despite these unfavorable conditions, contract deliveries are being made to the tire manufacturers and prices have in fact declined since last month.

NEW YORK QUOTATIONS.

MAY 27, 1918.

Prices subject to change without notice.

AIRPLANE AND BALLOON FABRICS:			
Wamsutta, S. A. I. L. No. 1, 40-inch	*yard*	$0.60	@
No. 4, 38½-inch		.50	@
for gas masks		.45	@
ASBESTOS CLOTH:			
Brake lining, 2½ lbs. sq. yd., brass or copper insertion	*lb.*	.75	@
2¼ lbs. sq. yd., brass or copper insertion	*lb.*	.80	@
BURLAPS:			
32— 7½-ounce	*100 yards*	None	
40— 7½-ounce		19.25	@
40— 8-ounce		19.50	@
40—10-ounce		24.00	@
40—10½-ounce		None	
45— 7½-ounce		22.75	@
45— 8-ounce		23.00	@
45— 9½-ounce		31.00	@
48—10-ounce		37.00	@
DRILLS:			
38-inch 2.00-yard	*yard*	.42½	@
40-inch 2.47-yard		.34½	@
52-inch 1.90-yard		.46½	@
52-inch 1.95-yard		.46½	@
60-inch 1.52-yard		.58	@
DUCK:			
CARRIAGE CLOTH:			
38-inch 2.00-yard enameling duck	*yard*	.44	@
38-inch 1.74-yard		.50½	@
72-inch 16.66-ounce		.91½	@
72-inch 17-21-ounce		.93½	@
MECHANICAL:			
Hose	*pound*	.70	@ .75
Belting		.70	@ .75
HOLLANDS, 40-INCH:			
Acme	*yard*	*.28½	@
Endurance	*yard*	*.31	@
Penn	*yard*	*.34	@
OSNABURGS:			
40-inch 2.35-yard	*yard*	.35	@
40-inch 2.48-yard		.33½	@
37½-inch 2.42-yard		.34	@
RAINCOAT FABRICS:			
COTTON:			
Bombazine 64 x 60 water repellent	*yard*	.23	@
60 x 48 not water repellent		.20½	@
Cashmeres, cotton and wool, 36-inch		.65	@
Twills 64 x 72		*.22	@ .25
64 x 102		*.25	@ .30
Twill, mercerized, 36-inch, tan and olive		.34½	@
blue and black		.35½	@
Tweed		*.35	@ .40
Tweed, printed		*.20	@ .22
Plaids 60 x 48		.21½	@
56 x 44		.20½	@
Repp		.25	@ .32
Surface prints 60 x 48		.21½	@
64 x 60		.23½	@
IMPORTED WOOLEN FABRICS SPECIALLY PREPARED FOR RUBBERIZING —PLAIN AND FANCIES:			
63-inch, 3¼ to 7½ ounces	*yard*	1.00	@ 2.75
36-inch, 2¾ to 5 ounces		.70	@ 1.60
IMPORTED PLAID LINING (UNION AND COTTON):			
63-inch, 2 to 4 ounces	*yard*	.90	@ 1.60
36-inch, 2 to 4 ounces		.52½	@ 1.00
DOMESTIC WORSTED FABRICS:			
36-inch, 4½ to 8 ounces	*yard*	.60	@ 1.40
DOMESTIC WOVEN PLAIN LININGS (COTTON):			
36-inch, 3¾ to 5 ounces	*yard*	.19	@ .30
SHEETINGS:			
40-inch 2.35-yard	*yard*	*.28½	@
40-inch 2.50-yard		*.27½	@
40-inch 2.70-yard		*.24½	@
40-inch 2.85-yard		*.23	@
40-inch 3.15-yard		*.19½	@
JACKET:			
Delaware	*yard*	*.28½	@
Schuylkill	*yard*	*.33	@
SILKS:			
Canton, 38-inch	*yard*	.31½	@
Schappe, 36-inch		.52½	@
STOCKINETTES:			
COTTON, 52-INCH:			
D—14-ounce	*yard*	*.85	@ .90
E—11½-ounce		*.60	@ .65
F—14-ounce		*.85	@ .90
G— 8-ounce		*.75	@ .80
H—11-ounce		*.70	@ .85
I— 9-ounce		*.60	@ .65
Knitaback	*pound*	1.75	@ 2.00
WOOL, 52-INCH:			
A—14-ounce	*yard*	*1.75	@
B—14-ounce		*2.25	@
C—14-ounce		*2.50	@
TIRE FABRICS:			
17¼-ounce Sea Island, combed	*square yard*	1.70	@
17¼-ounce Egyptian, combed		1.30	@
17¼-ounce Egyptian, carded		1.25	@
17¼-ounce Peelers, combed		1.15	@
17¼-ounce Peelers, carded		1.00	@

*Nominal.

THE MARKET FOR RUBBER SCRAP.

Copyright, 1918.

NEW YORK.

THE government control of crude rubber prices and imports that went into effect last month has had little influence on the scrap rubber market, other than steadying prices and creating small advances in boots and shoes and standard mixed auto tires.

BOOTS AND SHOES.—Trading and inquiries were sufficient to establish firm prices in this material and 9⅛ cents, delivered to the mills, was the minimum price quoted.

INNER TUBES.—General dullness and unchanged prices have characterized the market for tubes for the greater part of May. However, a firmer undertone was noted later in the month.

MECHANICALS. There was very little movement in these grades and prices remain unchanged.

TIRES.—The general condition of this market, was more favorable than any other scrap material, with standard mixed auto tires as the center of interest. While sales at 5¼ cents have been reported, standard mixed tires were generally quoted at 5¾ cents delivered to the mills.

STATISTICS.—The London and Liverpool imports of waste and reclaimed rubber for March were 12,100 pounds, value £148, compared with 85,900 pounds, value £873, for February. Exports for March totaled 786,900 pounds, value £17,932, compared with 306,300 pounds, value £20,738, for February.

NEW YORK QUOTATIONS FOR CARLOAD LOTS DELIVERED.

MAY 27, 1918.

Prices subject to change without notice.

BOOTS AND SHOES.			
Arctic tops	*lb.*	$0.01½	@ .01¾
Boots and shoes	*lb.*	.09½	@ .09¾
Trimmed arctics	*lb.*	.07¼	@ .07½
Untrimmed arctics	*lb.*	.06¼	@ .06½
HARD RUBBER.			
Battery jars, black compound	*lb.*	.02½	@
No. 1, bright fracture	*lb.*	.27	@ .28
INNER TUBES.			
No. 1, old packing	*lb.*	.22	@ .23½
new packing	*lb.*	.25	@ .26
No. 2	*lb.*	.11½	@ .12
Red	*lb.*	.11½	@ .12

MECHANICALS.

Black scrap, mixed, No. 1	lb.	.05½	@
No. 2	lb.	.04	@
Car springs	lb.	.05	@
Heels	lb.	.04	@
Horse-shoe pads	lb.	.04½	@
Hose, air-brake	lb.	.06	@ .06¼
fire, cotton lined	lb.	.02¾	@
garden	lb.	.02½	@ .02¾
Insulated wire stripping, free from fiber	lb.	.04	@
Matting	lb.	.01½	@
Packing	lb.	.01½	@
Red scrap, No. 1	lb.	.09½	@ .10
No. 2	lb.	.07	@ .07½
White scrap, No. 1	lb.	.13½	@
No. 2	lb.	.09	@

TIRES.

Pneumatic—			
Auto peelings, No. 1	lb.	.10	@
No. 2	lb.	.07¼	@ .07½
Bicycle	lb.	.05½	@
Standard white auto	lb.	.06¼	@
Standard mixed auto	lb.	.05½	@ .05¾
Stripped, unguaranteed	lb.	.04½	@
White, G. & G.	lb.	.06¼	@
M. & W. and U. S.	lb.	*.06¼	@
Solid—			
Carriage	lb.	.06	@
Irony	lb.	.02	@
Truck	lb.	.06½	@

*Nominal.

THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS.

Copyright, 1918.

NEW YORK.

CONSIDERABLE activity was evident in the base metal market during the last month. Copper has been in strong demand but awaits price-fixing developments. Tin remains quiet after a rather dull month, due to Eastern shipping difficulties. The lead situation has improved materially and prices have advanced. Later in the month, spot New York was quoted 7.25 cents. Spelter's position for the last month has been strong, showing price advances since April. New York spot quotations were 7.50 cents to 7.62½ cents during the last week of May. Antimony has had limited demand at lower prices than a month ago.

Aluminum is controlled by government prices on No. 1 virgin metal, 98 to 99 per cent pure, that range from 32 cents to 32.2 cents per pound in lots of 50 tons down to 1 ton.

The demand for rubber chemicals and ingredients has been active and prices have shown a tendency to advance, due to the general labor shortage and scarcity of raw materials. The shipping situation is somewhat better than last month, but still there are prevailing conditions that dictate higher prices for spot materials, and quantity buyers are finding factory shipments an advantage. It is probable a strong situation will develop in lithopone, barytes and zinc oxide, should the Government requisition contain acids that are used in the manufacture of these products.

NEW YORK QUOTATIONS.

MAY 27, 1918.

Subject to change without notice.

ACCELERATORS, ORGANIC.

Accelerator U. C. C	lb.	.50	@
Accelerene	lb.	*$2.62	@
Accelemal (100 pound drums)	lb.	.80	@
Accellerator No. 1	lb.	.60	@
Aldehyde ammonia (crystals)	bbl.	1.25	@
Aniline oil	lb.	.26	@ .27
Annex O.O.	lb.	.75	@
Duplex O.O.	lb.	1.25	@
Excellerex	lb.	.85	@
Hexamethylenexamine (Vitalin)	lb.	.60	@
Hexamethylene tetramine (powdered)	lb.	1.15	@ 1.25
Paraphenylenediamine	lb.	3.00	@
Tensilite	lb.	.70	@
Thiocarbanilide	lb.	*.50	@
Velocite	lb.	.60	@
Vitaminex	lb.	.60	@

ACCELERATORS, INORGANIC.

Lead, dry red	lb.	.10	@
sublimed blue	lb.	.08½	@ .09¾
sublimed white	lb.	.08½	@
white, basic carbonate	lb.	.09	@
white, basic sulphate	lb.	*.08½	@
Lime, flour	lb.	.01¾	@
Litharge, domestic	lb.	.09½	@ .13
English	lb.	.13½	@ .15
sublimed	lb.	.09¾	@
Magnesium, carbonate	lb.	.11¾	@ .13
calcined, heavy	lb.	.10½	@ .12
light	lb.	.40	@
Magnesium oxide	lb.	.07¼	@
Magnesite, calcined, powdered	ton	50.00	@65.00

ACIDS.

Acetic, 28 per cent (bbls.)	lb.	.06	@ .09
Glacial, 99 per cent (carboys)	lb.	.40	@ .42
Cresylic, 97-99 per cent, straw color	gal.	1.10	@
95 per cent, dark	gal.	1.00	@
Muriatic, 20 degrees	lb.	.03	@
Nitric, 36 degrees	lb.	.07½	@
Sulphuric, 66 degrees	lb.	.02	@

ALKALIES.

Caustic soda, 76 per cent, ground	lb.	.06	@ .06¼
Soda ash, light, 58 per cent in bags	lb.	.04½	@

TIRE
FABRICS

JENCKES
SPINNING
COMPANY

PAWTUCKET
RHODE ISLAND

COLORS.

Black:				
Bone, powdered	lb.	.05	@	
granulated	lb.	.09	@	
Carbon gas (cases)	lb.	.19	@	.25
Ivory black	lb.	.16	@	.30
Lamp black	lb.	.15	@	
Oil soluble aniline	lb.	1.25	@	
Rubber black	lb.	.06	@	
Blue:				
Cobalt	lb.	.25	@	.35
Prussian	lb.	.80	@	.90
Ultramarine	lb.	.18	@	.50
Brown:				
Iron oxide	lb.	.02½	@	
Ochre, domestic	lb.	.04	@	.06
imported	lb.	.06	@	.07
Sienna, raw and burnt	lb.	.06	@	.15
Umber, raw and burnt	lb.	.05	@	.07
Green:				
Chrome tile	lb.	.15	@	
Oxide of chromium (casks)	lb.	*.85	@	
India rubber	lb.	.75	@	
Red:				
Antimony, crimson, sulphuret of (casks)	lb.	.50	@	
crimson, "Mephisto" (casks)	lb.	.48	@	
Antimony, golden, sulphuret of	lb.	.25	@	
golden, "Mephisto" (casks)	lb.	.26	@	
golden, sulphuret, States brand, 16-17%	lb.	.28	@	
red sulphuret, States brand	lb.	.25	@	
vermilion sulphuret	lb.	.55	@	
Arsenic, red sulphide	lb.	.45	@	
Indian, reduced grades	lb.	.04	@	.08
pure bright	lb.	.14	@	
Iron oxide, reduced grades	lb.	*.04	@	.08
pure bright	lb.	.16	@	
Oil soluble aniline, red	lb.	2.50	@	3.00
orange	lb.	2.50	@	
Oxymony	lb.	.17	@	
Venetian	lb.	.02½	@	.04
Vermilion, English, pale, medium, dark	lb.	1.90	@	
White:				
Lithopone, imported	lb.	.07¾	@	.08
domestic	lb.	.07¼	@	
Ponolith	lb.	None		
Rubber makers' white	lb.	None		
Zinc oxide, Horsehead (less carload, f. o. b. factory):				
"XX red"	lb.	.10½	@	
"Special"	lb.	.11	@	
French process, red seal	lb.	.13¼	@	
green seal	lb.	.13¾	@	
white seal	lb.	.14¼	@	
Zinc sulphide, pure	lb.	None		
Yellow:				
Cadmium, tri-sulphate	lb.	*2.68	@	
sulphide	lb.	2.00	@	
Chrome, light and medium	lb.	.27	@	.28
India rubber	lb.	*1.00	@	
Ochre	lb.	.04½	@	.05½
Oil soluble aniline	lb.	2.50	@	
Zinc chromate	lb.	.50	@	

COMPOUNDING INGREDIENTS.

Aluminum flake (carloads, bbls., f. o. b. factory)	ton	24.00	@	27.00
Aluminum oxide	lb.	.18	@	
Ammonia carbonate, powdered	lb.	.13	@	.14
lumps	lb.	None		
Asbestine (bags)	ton	22.50	@	25.00
Asbestos (bags)	ton	35.00	@	
Barium, carbonate, precipitated	ton	60.00	@	
sulphide, precipitated	lb.	.07½	@	
Barytes, pure white	ton	30.00	@	35.00
off color	ton	22.00	@	25.00
uniform floated (f. o. b. factory)	ton	35.00	@	
Basofor	ton	110.00	@	
Blanc fixe	lb.	.04½	@	.05
Bone ash	lb.	.06	@	
Chalk, precipitated, extra light	lb.	.05	@	.05½
precipitated, heavy	lb.	.04	@	.04½
China clay, imported	ton	45.00	@	
Cotton linters, clean mill run, f. o. b. factory	lb.	4.67	@	
Fossil flour	lb.	.03¾	@	
Glue, high grade	lb.	.35	@	.45
medium	lb.	.30	@	.35
low grade	lb.	.23	@	.27
Graphite, flake (400 pound bbl.)	lb.	.10	@	.25
amorphous	lb.	.04	@	.08
Ground glass FF. (bbls.)	lb.	*.02¾	@	
Infusorial earth, powdered	ton	60.00	@	
bolted	ton	65.00	@	
Mica, powdered	lb.	.04½	@	.05
Plaster of Paris	bbl.	2.00	@	3.00
Pumice stone, powdered (bbl.)	lb.	.03	@	.04
Rotten stone, powdered	lb.	.04½	@	.05
Rubber flux	lb.	.15	@	
Rubbide	lb.	*.38	@	
Silex (silica)	ton	20.00	@	36.00
Soapstone, powdered, domestic	ton	18.00	@	25.00
imported	ton	40.00	@	
Starch, powdered corn (carload, bbls.)	cwt.	4.80	@	
(carload, bags 30 cts)	cwt.	4.50	@	
Talc, American	ton	15.00	@	22.00
French	ton	*28.00	@	
Tripoli Earth, powdered	ton	60.00	@	
bolted	ton	65.00	@	
Tyre-lith	ton	100.00	@	
Whiting, Alba	cwt.	.90	@	1.00
commercial	cwt.	1.30	@	
gilders	cwt.	1.35	@	
Paris, white, American	cwt.	1.50	@	
English cliffstone	cwt.	1.75	@	2.00
Wood pulp XXX	ton	40.00	@	45.00

MINERAL RUBBER.

Gilsonite	ton	50.00	@	55.00
Genasco (carloads)	ton	55.00	@	
M. R.	ton	65.00	@	
M. R. X.	ton	100.00	@	
Liquid rubber	lb.	.15	@	
Pioneer, carload, delivered	ton	50.00	@	
less carload, factory	ton	50.00	@	
Richmond Brand	ton	70.00	@	
No. 64 Brand	ton	50.00	@	
Refined Elaterite	lb.	.08½	@	
Raven M. R.	lb.	.02	@	.03

OILS.

Corn, refined Argo (carloads)	cwt.	20.72	@	
Glycerine (C. P. drums)	lb.	.72	@	
Linseed, raw (carloads)	gal.	1.55	@	
Palm	lb.	.18	@	
Paraffin	gal.	*.27	@	
Petrolatum	lb.	.06½	@	
Petroleum grease	lb.	.05½	@	
Pine, steam distilled	gal.	.47	@	
Pine tar	gal.	.28	@	
Rapeseed, refined	gal.	1.80	@	
blown	gal.	1.70	@	
Rosin	gal.	.47	@	
Soya bean, crude	lb.	.19¼	@	
Tar (cases)	gal.	.31	@	.33

SOLVENTS.

Acetone (drums)	lb.	.25½	@	.25¾
Benzol, 90 per cent	gal.	.30	@	.40
Beta-naphthol, resublimed	lb.	1.10	@	
ordinary grade	lb.	.80	@	
Halowax oil No. 1000 (f. o. b. Wyandotte)	lb.	*.25	@	
No. 1001 (f. o. b. Wyandotte)	lb.	*.32	@	
Naphtha, motor gasoline (steel bbls.)	gal.	.24	@	
73 @ 76 degrees (steel bbls.)	gal.	.33	@	
68 @ 70 degrees (steel bbls.)	gal.	.30	@	
V. M. & P. (steel bbls.)	gal.	.23	@	
Toluol, pure	gal.	1.78	@	2.00
Turpentine, spirits	gal.	.51	@	.51½
wood	gal.	.44	@	
Venice	lb.	*.10	@	

SUBSTITUTES.

Black	lb.	.11	@	.18
White	lb.	.13	@	.25
Brown	lb.	.18	@	.24
Brown factice	lb.	.09	@	.23
White factice	lb.	.13	@	.25
Cordex	lb.	.45	@	
Energine	lb.	.30	@	
Paragol soft and medium (carloads)	cwt.	16.96	@	
hard	cwt.	16.46	@	
Toughenite	lb.	.40	@	

VULCANIZING INGREDIENTS.

Carbon, bisulphide (drums)	lb.	.07½	@	.10
tetrachloride (drum)	lb.	.15¾	@	.17
Lead, black hyposulphite (Black Hypo)	lb.	None		
Orange mineral, domestic	lb.	.13	@	
Sulphur chloride (drums)	lb.	.06½	@	.08
Sulphur, flour, velvet brand (carloads)	cwt.	3.90	@	3.95
pure soft, velvet brand (carloads)	cwt.	3.95	@	

(See also Colors—Antimony)

RESINS AND PITCHES.

Cantella gum	lb.	.55	@	
Pine tar, retort	bbl.	13.00	@	
kiln	gal.	.24	@	
Pitch, Burgundy	lb.	.04½	@	
coal tar	lb.	.01½	@	
pine tar	lb.	.02	@	
ponti	lb.	.12	@	
Resin, Pontianak, refined	lb.	None		
granulated	lb.	None		
fused	lb.	None		
Rosin, K	bbl.	7.90	@	
Shellac, fine orange	lb.	.72½	@	.78
Tar, kiln	bbl.	11.00	@	11.50

WAXES.

Wax, beeswax, white	lb.	.65	@	.68
ceresin, white	lb.	.22	@	.24
carnauba	lb.	.80	@	.93
ozokerite, black	lb.	.58	@	.60
green	lb.	.78	@	.80
montan	lb.	.40	@	.42
substitute	lb.	.28	@	.32
paraffin, crude 118/120 m. p. (cases)	lb.	.09½	@	.10
124/126 m. p. (cases)	lb.	.09¾	@	.10
refined 128/130 m. p. (cases)	lb.	.13¾	@	.14
135/137 m. p. (cases)	lb.	.16	@	.16½

*Nominal.

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